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ABSTRACT

An annual annotated listing of research on mathematics education is presented. The research is organized alphabetically by author(s) within three categories (research summaries, journal-published reports, and dissertation abstracts). Grade and age levels are indicated for each reference. An index of general topics is appended to help readers locate studies of particular interest. Included in the listing are studies in which mathematics education was not the sole or primary focus of the research. While most of these peripheral studies are not annotated, those studies specific to mathematics are annotated, and most annotations indicate one principal finding of the study. (MK)

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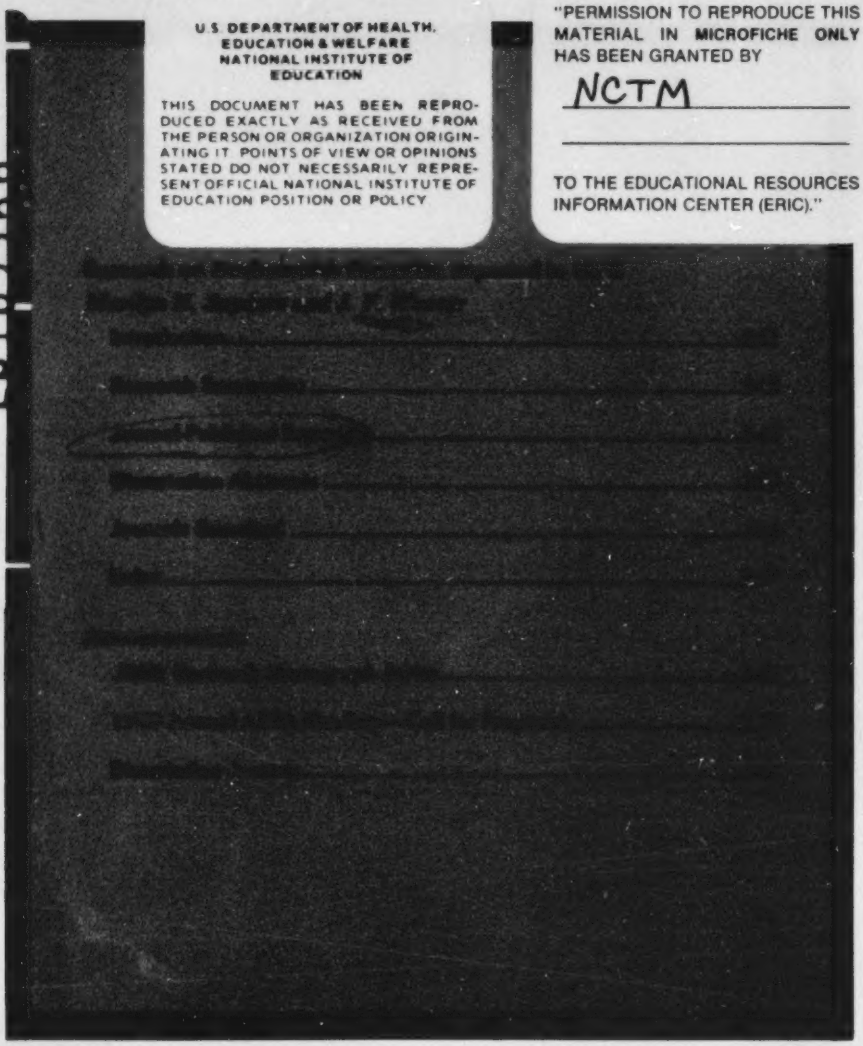

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The *Journal for Research in Mathematics Education* is devoted to the interests of teachers of mathematics and mathematics education at all levels—elementary school through college.

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RESEARCH ON MATHEMATICS EDUCATION REPORTED IN 1978

Marilyn N. Suydam
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This ninth annual listing of research on mathematics education published in *JRME* uses the same format as was used last year. The research is organized alphabetically by author(s) within three categories (research summaries, journal-published reports, and dissertation abstracts), with grade or age indicated for each reference. An index of general topics is appended to help readers locate studies of particular interest. Journals searched are also listed.

Included in the listing are studies in which mathematics education was not the sole or primary focus of the research. Most of these peripheral studies are not annotated, but studies specific to mathematics education are annotated, as in previous years.

Most annotations indicate one principal finding of the study, although there may be other findings of interest to individual readers. Again we caution that there is no substitute for careful reading of the complete research report. Readers are urged to check the original report for other results of a study as well as for information that will aid them in assessing the validity of the findings.

Despite the fact that we search journals page by page and use indexes (such as *Current Index to Journals in Education*) to locate articles in journals in which mathematics research reports appear irregularly or in journals to which we have no access, we fail to locate some references until after the listing for a given year is in print. Thus, some reports for 1977 have come to our attention, including the following:

The bibliographical entries in this listing do not conform to *JRME* style requirements. Permission was granted to the authors to follow the procedures and format previously established.—*The Editor*

DAI is used to refer to *Dissertation Abstracts International.* Order numbers are included; orders should be sent to University Microfilms International, P.O. Box 1764, Ann Arbor, MI 48106.

Funds for the preparation of this publication were provided in part by the ERIC® Clearinghouse for Science, Mathematics, and Environmental Education pursuant to a contract with the National Institute of Education (NIE). Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official NIE position or policy.

Close, John Sylvester. A Study of the Development of Linear Patterning Among Young Economically-Disadvantaged Children of Three Ethnic Groups. (The University of Connecticut, 1976.) *DAI* 37A: 5693; March 1977.

Olson, Melfried. Computational Competencies of Prospective Elementary Mathematics Teachers. *School Science and Mathematics* 77: 613–614; November 1977.

Starr, Robert J. Modern Math Plus Computational Drills: Affective and Cognitive Results. *School Science and Mathematics* 77: 601–604; November 1977.

Additional reports (often "peripheral" by our earlier definition) are also listed in *Psychological Abstracts,* which cites references approximately a year after they have been published. Some readers will want to search that journal directly.

Because of time (ours) and space (*JRME*'s) constraints, no attempt has been made to provide a continuous updating within the annual listing. At intervals, however, the ERIC Clearinghouse for Science, Mathematics, and Environmental Education publishes a compilation of research references* that contains those listed in *JRME* plus additional references (including ERIC documents).

We try to produce a listing that will aid readers; it is printed as soon as possible after the year to which it applies. We hope we succeed in helping someone save some time.

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* One such compilation is: Suydam, Marilyn N. *A Categorized Listing of Research on Mathematics Education (K–12), 1964–1973.* Columbus: ERIC/SMEAC, 1974. A compilation for 1974–1978 will be published late in 1979.

JRME Research Monograph Series

The NCTM Board of Directors has approved the establishment of a *JRME* Research Monograph series on a trial basis. Publication of three monographs will be considered over the next three years. A call for monograph proposals will be included in the November *JRME*.

1980 Annual AERA Meeting—Call for Proposals

The AERA Special Interest Group for Research in Mathematics Education will sponsor several sessions at the 1980 Annual Meeting of the American Educational Research Association to be held in Boston on 7–11 April 1980. Proposals for papers and/or symposia should be forwarded to William E. Geeslin, Department of Mathematics—Kingsbury Hall, University of New Hampshire, Durham, NH 03824 by 15 August 1979. Proposals must follow the guidelines published in the May 1979 issue of *Educational Researcher* and should be aimed for a mathematics education audience. All proposals will be examined by three SIG/RME reviewers. Proposals recommended for sponsorship by the reviewers will be grouped into sessions and forwarded to the AERA SIG program committee for final action. Authors will be notified of SIG/RME recommendations and AERA decisions.

Research Summaries

One listing of research reports and 14 articles summarizing or discussing research findings were located.

Burton, Grace M. Mathematical Ability--Is It a Masculine Trait? School Science and Mathematics 78: 566-574; November 1978.

Studies on sex differences in mathematical ability are discussed.

Case, Robbie. A Developmentally Based Theory and Technology of Instruction. Review of Educational Research 48: 439-463; Summer 1978.

Cicirelli, Victor G. The Relationship of Sibling Structure to Intellectual Abilities and Achievement. Review of Educational Research 48: 365-379; Summer 1978.

Clements, Sam D. and Barnes, Stephen M. The Three Rs and Central Processing Training. Academic Therapy 13: 535-547; May 1978.

Theories and principles underlying central processing training for children with specific learning disabilities and minimal brain dysfunction are reviewed.

Friedman, Morton. The Manipulative Materials Strategy: The Latest Pied Piper? Journal for Research in Mathematics Education 9: 78-80; January 1978.

Four studies on the use of materials are discussed.

Gagne, Robert M. and White, Richard T. Memory Structures and Learning Outcomes. Review of Educational Research 48: 187-222; Spring 1978.

Gray, John and Satterly, David. Time to Learn? Educational Research 20: 137-142; February 1978.

Hassett, Matthew J. and Thompson, Richard B. PSI in College Mathematics. American Mathematical Monthly 85: 760-763; November 1978.

Eleven reports of PSI studies (given at a conference) are summarized. (college)

Hollander, Sheila K. A Review of Research Related to the Solution of Verbal Arithmetic Problems. School Science and Mathematics 78: 59-70; January 1978.

Studies conducted between 1922 and 1969 are reviewed; recommendations for continued research are made.

Hollander, Sheila K. A Literature Review: Thought Processes Employed in the Solution of Verbal Arithmetic Problems. School Science and Mathematics 78: 327-334; April 1978.

Studies conducted between 1917 and 1973 in which the introspective-retrospective technique of data gathering was used in determining mental processes are reviewed.

Lamb, Charles E. Measurement and Logical Reasoning in Elementary School Mathematics. School Science and Mathematics 78: 553-558; November 1978.

Studies on measurement ideas associated with the count of a collection and the length of an object are reviewed.

Lieblich, Gerald S. Pros and Cons of the Handheld Calculator. MATYC Journal 12: 199-203; Fall 1978.

Several studies on the effect of calculator use are presented, along with references citing opinions.

Rappaport, Karen D. Sexual Roles and Mathematical Expectations. MATYC Journal 12: 195-198; Fall 1978.

Some research results on male-female differences in mathematics achievement and attitude are discussed.

Suydam, Marilyn N. and Weaver, J. F. Research on Mathematics Education Reported in 1977. Journal for Research in Mathematics Education 9: 242-318; July 1978.

This eighth annual annotated listing includes six research summaries, 176 journal-published reports, and 343 dissertations for kindergarten through post-secondary levels. An index cites articles by focus.

Wheatley, Grayson H.; Mitchell, Robert; Frankland, Robert L.; and Kraft, Rosemarie. Hemispheric Specialization and Cognitive Development: Implications for Mathematics Education. Journal for Research in Mathematics Education 9: 20-32; January 1978.

Evidence is presented for the theory that the two brain hemispheres process stimuli differently.

Dissertation Awards

The first annual NCTM Dissertation Awards will be given at the 1980 Annual Meeting in Seattle. Applications to be considered in the competition (for dissertations completed between 1 July 1978 and 30 June 1979) must be submitted to the Research Advisory Committee by 1 September 1979. For more information contact Elizabeth Fennema, RAC Chair, 225 N. Mills, Madison, WI 53706.

Journal-Published Reports

This section contains 215 articles. The list of journals searched and the number of articles from each source may be found at the end of the total listing.

Adi, Helen. Intellectual Development and Reversibility of Thought in Equation Solving. Journal for Research in Mathematics Education 9: 204-213; May 1978.

A significant positive relationship was found between developmental levels and performance on equation solving when different reversible processes were applied. (elementary preservice)

Adi, Helen; Karplus, Robert; Lawson, Anton; and Pulos, Stephen. Intellectual Development Beyond Elementary School VI: Correlational Reasoning. School Science and Mathematics 78: 675-683; December 1978.

A significant number of students did not use correlational reasoning on the tasks. (grades 9-12)

Alderman, Donald L. Tree Searching and Student Problem Solving. Journal of Educational Psychology 70: 209-217; April 1978.

The number of "problem reductions" performed in "tree searching" accounted for most of the variance across examples in error rate and time to solution. (elementary)

Aleamoni, Lawrence M. and Oboler, Linda. ACT Versus SAT Predicting First Semester GPA. Educational and Psychological Measurement 38: 393-399; Summer 1978. [college]

Anderson, C. C. and Maguire, T. O. The Effect of TV Viewing on the Educational Performance of Elementary School Children. Alberta Journal of Educational Research 24: 156-163; September 1978. [grades 3-6]

Anderson, David R. and Clark, Alice T. Comparison of Conservation Training Procedures. Psychological Reports 43: 495-499; October 1978. [grade 1]

Anthony, Barbara and Hudgins, Bryce B. Problem-Solving Processes of Fifth Grade Arithmetic Pupils. Journal of Educational Research 72: 63-67; November/December 1978.

Significant effects did not occur for the poor problem solvers as a result of extensive training. (grade 5)

Antonak, Richard F. and Roberge, James J. Characteristics of the Conditional Reasoning of Educable Retardates. American Educational Research Journal 15: 519-528; Fall 1978.

Expected differences for age and type of logic content were not found. (ages 11-16, EMRs)

Babad, Elisha Y. and Bashi, Joseph. On Narrowing the Performance Gap in Mathematical Thinking Between Advantaged and Disadvantaged Children. Journal for Research in Mathematics Education 9: 323-333; November 1978.

Disadvantaged Israeli students scored as well as advantaged students on a cryptarithmetic test following instruction on relevant problem-solving strategies. (grade 7)

Bana, Jack and Nelson, Doyal. Distractors in Nonverbal Mathematical Problems. Journal for Research in Mathematics Education 9: 55-61; January 1978.

The effects of both grade level and distraction setting on problem-solving performance were highly significant; children who used a manipulative approach were more prone to distraction than those using a verbal approach. (grades 1-3)

Barnett, Jeffrey C. and Eastman, Phillip M. The Use of Manipulative Materials and Student Performance in the Enactive and Iconic Modes. Journal for Research in Mathematics Education 9: 94-102; March 1978.

No significant differences were found between groups using or not using manipulative aids on tests requiring responses in representational or manipulative modes. Significant differences favored the "hands-on" group on a mathematics concepts test. (elementary preservice)

Barr, David C. A Comparison of Three Methods of Introducing Two-Digit Numeration. Journal for Research in Mathematics Education 9: 33-43; January 1978.

The group taught to count by tens did better than those who counted in the ordinary way. Poorest results came from the group who did not count past ten, but grouped objects into tens and ones. (grade K)

Becker, Jerry P. and Young, Courtney D., Jr. Designing Instructional Methods in Mathematics to Accommodate Different Patterns of Aptitude. Journal for Research in Mathematics Education 9: 4-19; January 1978.

No significant interaction was found between instruction and aptitude variables, but four disordinal interactions were found. (grade 8)

Beckmann, Milton W. Basic Competencies--Twenty-Five Years Ago, Ten Years Ago, and Now. Mathematics Teacher 71: 102-106; February 1978.

Data from tests given in 1950, 1965, and 1975 are discussed. (grade 9)

Behr, Merlyn J. and Eastman, Phillip M. Development and Validation of Two Cognitive Preference Scales. Journal of Experimental Education 46: 28-34; Spring 1978.

The scales were found to discriminate between subjects according to their cognitive preference. (elementary pre- and in-service, college)

Bennett, J. Phillip. Modern Mathematics: Perceptions of Secondary Mathematics Department Chairpersons. School Science and Mathematics 78: 691-696; December 1978.

Data on courses were compiled, with information on problems and improvements from use of "modern" mathematics. (secondary)

Bernoff, Joshua D. and Rowe, Mary Budd. A Comparison of Two Methods of Teaching the Metric System: Bilingual vs. Immersion. Science and Children 15: 27; May 1978. [grade 6]

Berry, Stewart. Monitoring Student Achievement for Accountability: The Demonstration of a Model. Journal of Educational Research 71: 308-313; July/August 1978. [grade 8]

Bilbo, Thomas E. and Milkent, Marlene M. A Comparison of Two Different Approaches for Teaching Volume Units of the Metric System. Journal of Research in Science Teaching 15: 53-57; January 1978. [college]

Boegli, R. Glen and Wasik, Barbara H. Use of the Token Economy System to Intervene on a School-Wide Level. Psychology in the Schools 15: 72-78; January 1978.

Use of the token system resulted in increased rate of gain on reading and mathematics tests. (grades K-6)

Bohannon, Tom and Smith, W. B. Student Placement Utilizing Incomplete Data Records. Educational and Psychological Measurement 38: 45-52; Spring 1978. [college]

Bowman, Clair Michael and Fillos, Rita M. Examining School Effects on Achievement: A Conceptual Model and an Example. Journal of Educational Research 72: 68-75; November/December 1978. [grades 6, 7]

Boyce, Max W. Some Comments on the Use of the Cloze for Classroom Mathematics Materials. School Science and Mathematics 78: 9-12; January 1978.

Words of seven or more letters had a relatively low replacement rate, while words of one to two letters had a high rate. (elementary preservice)

Braswell, James S. The College Board Scholastic Aptitude Test: An Overview of the Mathematical Portion. Mathematics Teacher 71: 168-180; March 1978. [secondary]

Breuning, Stephen E. Precision Teaching in the High School Classroom: A Necessary Step Towards Maximizing Teacher Effectiveness and Student Performance. American Educational Research Journal 15: 125-140; Winter 1978. [secondary]

Bridgeman, Brent and Shipman, Virginia C. Preschool Measures of Self-Esteem and Achievement Motivation as Predictors of Third-Grade Achievement. Journal of Educational Psychology 70: 17-28; February 1978. [grades K-3]

Brooks, Sarah and Hartz, Mary A. Predictive Ability of a Branching Test. Educational and Psychological Measurement 38: 415-419; Summer 1978.

A 75-item mathematics test was developed in which certain key blocks predicted passing (or failing) other easier (harder) blocks in the hierarchy. (community college)

Broughton, Sam F. and Lahey, Benjamin B. Direct and Collateral Effects of Positive Reinforcement, Response Cost, and Mixed Contingencies for Academic Performance. Journal of School Psychology 16: 126-136; Summer 1978.

Three contingency systems each increased performance in subtraction and on-task behavior. (grades 4, 5)

Brown, John Seely and Burton, Richard R. Diagnostic Models for Procedural Bugs in Basic Mathematical Skills. Cognitive Science 2: 155-192; 1978.

The model is described, with examples of how it helps in diagnosing misconceptions. Data from the computer-based system for Nicaraguan students is given. (grades 4-6)

Brush, Lorelei R. Preschool Children's Knowledge of Addition and Subtraction. Journal for Research in Mathematics Education 9: 44-54; January 1978.

Children were "very competent" at the tasks though they often did not use numbers. (nursery school, grade K)

Brush, Lorelei R. A Validation Study of the Mathematics Anxiety Rating Scale (MARS). Educational and Psychological Measurement 38: 485-490; Summer 1978.

The scale distinguished between students with different majors; scores correlated highly with such measures as dislike and anxiety about mathematics. (college)

Buriel, Raymond. Relationship of Three Field-Dependence Measures to the Reading and Math Achievement of Anglo American and Mexican American Children. Journal of Educational Psychology 70: 167-174; April 1978. [grades 1-4]

Callihan, Hubert D. and Bell, Frederick H. The Effect of Specially Constructed Advance Organizers and Post-Organizers on Mathematics Learning. International Journal of Mathematical Education in Science and Technology 9: 433-450; November 1978.

A post-organizer had a significant facilitating effect on immediate free-recall, but not on immediate content recognition or delayed free-recall in a statistics course. (college)

Campbell, Patricia F. Textbook Pictures and First-Grade Children's Perception of Mathematical Relationships. Journal for Research in Mathematics Education 9: 368-374; November 1978.

Neither drawing style nor number of pictures had a significant effect on either story response scores or number sentence response scores. (grade 1)

Carter, Donald E.; Spero, A. June; and Walsh, James A. A Comparison of the Visual Aural Digit Span and the Bender Gestalt as Discriminators of Low Achievement in the Primary Grades. Psychology in the Schools 15: 194-198; April 1978. [ages 6-8]

Christoplos, Florence and Borden, JoAnn. Sexism in Elementary-School Mathematics. Elementary School Journal 78: 275-277; March 1978.

Girls did better on female-oriented problems, while boys did better on male-oriented problems. (grade 1)

Claxton, G. and Acres, Frances. Does How You Learn Maths Influence How You Form Concepts? British Journal of Educational Psychology 48: 79-83; February 1978.

No overall difference was found between children taught by Dienes or Fletcher schemes, but those taught by the Dienes method formed real-life concepts more successfully. (ages 8-11)

Cohen, Herbert G. The Scaling of Six Topological Piagetian Groupings, As Well As the Effect that Certain Selected Variables Have on the Attainment of These Groupings and Some of Their Homologs in the Logical Domain. Journal of Research in Science Teaching 15: 115-125; March 1978. [grades K-2]

Cohen, Martin P. and Carry, L. Ray. Interest and Its Relationship to Verbal Problem-Solving. International Journal of Mathematics Education in Science and Technology 9: 207-212; May 1978.

No evidence was found that it would be possible to predict at which type (context) of problem a student would be most successful if prior knowledge of interests were available. (grade 8)

Cohn-Jones, L. and Seim, R. Perceptual and Intellectual Factors Affecting Number Concept Development in Retarded and Nonretarded Children. American Journal of Mental Deficiency 83: 9-15; July 1978. [grade 1]

Cornelius, M. L. and Cockburn, D. Influences on Pupil Performance. Educational Research 21: 48-53; November 1978. [age 16]

Cowan, Richard E. and Clary, Robert C. Identifying and Teaching Essential Mathematical Skills—Items. Mathematics Teacher 71: 130-133; February 1978.

Responses from a survey of lay and business publics and mathematics educators indicated skills considered essential. (--)

Coward, P. H. Electronic Calculators in Further Education. Mathematics Teaching 82: 26-28; March 1978.

Use of the calculator improved students' arithmetic performance significantly, with less-able students showing proportionally about twice the improvement of the more able. (secondary, college)

Crano, William D. and Mellon, Phyllis M. Causal Influence of Teachers' Expectations on Children's Academic Performance: A Cross-Lagged Panel Analysis. Journal of Educational Psychology 70: 39-49; February 1978.

The analysis "suggests that teachers' expectations caused children's performance [on reading and mathematics measures] to an extent appreciably exceeding that to which performance influenced expectations". (ages 7-10)

Das, J. P. and Cummins, James. Academic Performance and Cognitive Processes in EMR Children. American Journal of Mental Deficiency 83: 197-199; September 1978. [ages 13-15 (EMRs)]

David, Jane L. and Pelavin, Sol H. Evaluating Compensatory Education: Over What Period of Time Should Achievement Be Measured? Journal of Educational Measurement 15: 91-99; Summer 1978. [grades 7, 8]

Davis, Robert B.; Jockusch, Elizabeth; and McKnight, Curtis. Cognitive Processes in Learning Algebra. Journal of Children's Mathematical Behavior 21: 1-320; Spring 1978.

This monograph presents a theoretical framework for investigating the thought processes that are involved when students begin the study of algebra, and presents anecdotal evidence and interview protocols gathered over a period of several years. (secondary)

DeRuiter, James A. and Stramiello, Albert A. Learner Referenced Evaluation in Learning Disabilities. Colorado Journal of Educational Research 17: 10-14; Summer 1978. [in-service teachers]

Duby, Paul B. and Giltrow, David R. Predicting Student Withdrawals in Open Learning Courses. Educational Technology 18: 43-47; February 1978. [college]

Easterday, Kenneth E. and Henry, Loren L. The Effect of Maturation or Education on Sentential Logic. Journal for Research in Mathematics Education 9: 67-69; January 1978.

Percentage of correct responses increase with age; comments on types of items are given. (grades 2, 3, 7, 8, 12, preservice teachers)

Eastman, Phillip M. and Salhab, Mohammed. The Interaction of Spatial Visualization and General Reasoning Abilities with Instructional Treatment on Absolute Value Equations. Journal for Research in Mathematics Education 9: 152-154; March 1978.

A significant interaction was found between aptitudes and treatment (geometric or algebraic). (elementary preservice)

Eshel, Yohanan and Klein, Zev. The Effects of Integration and Open Education on Mathematics Achievement in the Early Primary Grades in Israel. American Educational Research Journal 15: 319-323; Spring 1978. [grades 1, 2]

Essen, Juliet; Fogelman, Ken; and Ghodsian, Mayer. Long-Term Changes in the School Attainment of a National Sample of Children. Educational Research 20: 143-151; February 1978. [ages 7-16]

Ethelberg-Laursen, J. An Experiment in Danish Schools. Mathematics Teaching 82: 24-25; March 1978.

Students using calculators were faster and more accurate. (age 8)

Fabre, Ted; McManis, Donald L.; and Stanton, Gary. Stability of Direct and Transfer Effects of Number-Conservation Training with Mentally Retarded Adults. American Journal of Mental Deficiency 83: 69-73; July 1978. [adults (MRs)]

Feinberg, Lawrence B. and Halperin, Silas. Affective and Cognitive Correlates of Course Performance in Introductory Statistics. Journal of Experimental Education 46: 11-18; Summer 1978. [college]

Fennema, Elizabeth H. and Sherman, Julia A. Sex-Related Differences in Mathematics Achievement and Related Factors: A Further Study. Journal for Research in Mathematics Education 9: 189-203; May 1978.

Significant sex-related differences found on high school level were not found for the middle school students in this study. (grades 6-8)

Ferguson, Richard L. and Schmeiser, Cynthia B. The Mathematics Usage Test of the ACT Assessment Program: An Overview of Its Purpose, Content, and Use. Mathematics Teacher 71: 182-191; March 1978. [secondary]

Fitzgerald, A. Pupils' Performances on Industrial Selection Tests in Relation to Their Mathematical Background. Educational Research 20: 122-129; February 1978. [secondary]

Fitzpatrick, Jody L. Academic Underachievement, Other-Direction, and Attitudes Toward Women's Roles in Bright Adolescent Females. Journal of Educational Psychology 70: 645-650; August 1978. [grade 10]

Flener, Frederick O. Reflections on a Problem Solving Study. International Journal of Mathematical Education in Science and Technology 9: 9-13; February 1978.

Questions regarding the type of teacher input and its effect on immediate and delayed performance in student problem solving are examined. (secondary)

Flexer, Roberta J. Comparison of Lecture and Laboratory Strategies in a Mathematics Course for Prospective Elementary Teachers. Journal for Research in Mathematics Education 9: 103-117; March 1978.

"There was no reason to conclude that either strategy was superior to the other." (elementary preservice)

Flynn, Timothy M. and Flynn, Lynda A. Evaluation of the Predictive Ability of Five Screening Measures Administered During Kindergarten. Journal of Experimental Education 46: 65-70; Spring 1978. [grades K-2]

Fogelman, K. School Attendance, Attainment and Behaviour. British Journal of Educational Psychology 48: 148-158; June 1978. [ages 7, 15, 16]

Fogelman, Ken and Gorbach, Peter. Age of Starting School and Attainment at 11. Educational Research 21: 65-66; November 1978. [age 11]

Forman, Susan G. and McKinney, James D. Creativity and Achievement of Second Graders in Open and Traditional Classrooms. Journal of Educational Psychology 70: 101-107; February 1978. [grade 2]

Fowler, Patrick C. and Richards, Herbert C. Father Absence, Educational Preparedness, and Academic Achievement: A Test of the Confluence Model. Journal of Educational Psychology 70: 595-601; August 1978. [grade K]

Fraser, Barry J. and Koop, Anthony J. Teachers' Opinions About Some Teaching Material Involving History of Mathematics. International Journal of Mathematics Education in Science and Technology 9: 147-151; May 1978.

Teachers' opinions of the materials were generally favorable, but about a third stated they would not actually use the materials in their own teaching. (secondary teachers)

Friesen, Charles D. A Look at General Education Mathematics Programs. Two-Year College Mathematics Journal 9: 218-221; September 1978.

Data on types of courses, teaching techniques, and topics are included in this report of a survey. (two-year colleges)

Fyffe, Darrel W. Elementary School Preparedness for Metrication. School Science and Mathematics 78: 643-648; December 1978.

The majority of teachers in the Ohio sample felt that metrication will be beneficial, although few felt qualified to teach it. (elementary in-service)

Ginsburg, Herbert. Poor Children, African Mathematics, and the Problem of Schooling. Educational Research Quarterly 2: 26–44; Winter 1978. [ages 5–6]

Ginther, Joan R. Pretraining Chicano Students Before Administration of a Mathematics Predictor Test. Journal for Research in Mathematics Education 9: 118–125; March 1978.

Pretraining improved Arithmetic Reasoning Test reliability for Chicano students but not for non-Chicano students. Pretraining had no effect on Missing Words Test reliability, but did improve predictive power. (grade 7)

Gold, Dolores and Andres, David. Developmental Comparisons Between Ten-Year-Old Children with Employed and Nonemployed Mothers. Child Development 49: 75–84; March 1978. [age 10]

Good, Thomas L. and Beckerman, Terrill M. Time on Task: A Naturalistic Study in Sixth-Grade Classrooms. Elementary School Journal 78: 193–201; January 1978. [grade 6]

Greabell, Leon C. The Effect of Stimuli Input on the Acquisition of Introductory Geometric Concepts by Elementary School Children. School Science and Mathematics 78: 320–326; April 1978.

Planned exposure to a greater number of stimuli has a positive effect on achievement. (ages 7–9)

Grunau, Ruth V. E. Effects of Elaborative Prompt Condition and Developmental Level on the Performance of Addition Problems by Kindergarten Children. Journal of Educational Psychology 70: 422–432; June 1978.

Children at three conservation levels performed best under a concrete-plus-verbal-prompt condition. Differences when one number was less than the other were noted. (grade K)

Gullen, George E. Set Comparison Tactics and Strategies of Children in Kindergarten, First Grade, and Second Grade. Journal for Research in Mathematics Education 9: 349–360; November 1978.

Children used five different tactics and 12 different strategies in making 12 comparisons of "more" or "same number". (grades K–2)

Gussett, James C. What Does Industry Really Want in a Mathematics Major? School Science and Mathematics 78: 472–474; October 1978.

Courses and other requirements of industries employing college graduates are listed. (college)

Hadar, N. Children's Conditional Reasoning Part III: A Design for Research on Children's Learning of Conditional Reasoning and Research Findings. Educational Studies in Mathematics 9: 115–140; February 1978.

Experimental and control groups did not differ significantly in achievement, nor was a correlation found with the learning of logic. (grade 5)

Hadar, N. and Henkin, L. Children's Conditional Reasoning Part II: Towards a Reliable Test of Conditional Reasoning Ability. Educational Studies in Mathematics 9: 97-114; February 1978.

The development of a 32-item test is described; reliability was .79. (grade 5)

Hall, J. C. and Thomas, J. B. Role Specifications for Applicants for Heads of Mathematics Departments in Schools. Educational Review 30: 35-39; February 1978. [secondary]

Harnqvist, Kjell. Primary Mental Abilities at Collective and Individual Levels. Journal of Educational Psychology 70: 706-716; October 1978. [grades 4-9]

Hart, Kathleen. The Understanding of Ratio in the Secondary School. Mathematics in School 7: 4-6; January 1978.

It was concluded that doubling ability is no indicator of the ability to tackle other ratio questions. The addition strategy is fairly consistent on harder questions. (secondary)

Hartke, Alan R. The Use of Latent Partition Analysis to Identify Homogeneity of an Item Population. Journal of Educational Measurement 15: 43-47; Spring 1978.

The technique was found appropriate to test for a conceptually homogeneous item population, using an algebra test as the trial instrument. (secondary in-service)

Haylock, Derek W. An Investigation into the Relationship Between Divergent Thinking in Non-Mathematical and Mathematical Situations. Mathematics in School 7: 25; March 1978.

Correlations between general creativity scores and mathematical creativity scores were found to be near zero. (ages 14, 15)

Hecht, Lawrence W. Measuring Student Behavior During Group Instruction. Journal of Educational Research 71: 283-290; May/June 1978.

During geometry instruction, scores on the Activities Checklist correlated .587 with time-on-task obtained by direct observation and .483 assessed by stimulated recall. Correlations with aptitude, achievement, and attitude were noted. (grade 10)

Hendrickson, Dean and Virant, Milt. A Study of Needs for Further Learning as Seen by Teachers of Secondary School Mathematics. School Science and Mathematics 78: 655-664; December 1978.

The needs of teachers in Minnesota were studied using a rating scale. (secondary)

Hendrickson, Joe D. and Uhrig, Elaine. An Application of Learner Referenced Evaluation: Acoustically Handicapped. Colorado Journal of Educational Research 17: 27-31; Summer 1978. [elementary preservice]

Henry, Loren L. and Rowsey, Robert E. Comparative Study of the Knowledge of Metric Units of Measure and Their Application. Science Education 62: 283-289; July-September 1978.

Students could perform paper-pencil computation with metric units without being able to apply them. (secondary preservice)

Hiebert, James and Tonnessen, Lowell H. Development of the Fraction Concept in Two Physical Contexts: An Exploratory Investigation. Journal for Research in Mathematics Education 9: 374-378; November 1978.

Six of nine children were immediately successful in the set/subset task, but only two children succeeded in both length and area tasks. (ages 5-8)

Hirstein, James J.; Lamb, Charles E.; and Osborne, Alan. Student Misconceptions About Area Measure. Arithmetic Teacher 25: 10-16; March 1978.

Five common types of misconceptions related to area were identified from interviews with children. (grades 3-6)

Hook, Jay. The Development of Equity and Logico-Mathematical Thinking. Child Development 49: 1035-1044; December 1978. [ages 5, 9, 13]

Hornik, Robert C. Television Access and the Slowing of Cognitive Growth. American Educational Research Journal 15: 1-15; Winter 1978. [grades 7-9]

Houtz, John C. and Speedie, Stuart M. Processes Underlying Divergent Thinking and Problem Solving. Journal of Educational Psychology 70: 848-854; October 1978. [grade 5]

Howell, Kenneth W. Using Peers in Drill-Type Instruction. Journal of Experimental Education 46: 52-56; Spring 1978.

Students could identify errors in multiplication "fact problems" with a high degree of reliability. Peers could "deliver" drill-type instruction. (grades 4-8)

Hundert, Joel and Batsone, David. A Practical Procedure to Maintain Pupils' Accurate Self-Rating in a Classroom Token Program. Behavior Modification 2: 93-112; January 1978. [ages 9-10]

Irwin, Marc; Engle, Patricia L.; Yarbrough, Charles; Klein, Robert E.; and Townsend, John. The Relationship of Prior Ability and Family Characteristics to School Attendance and School Achievement in Rural Guatemala. Child Development 49: 415-427; June 1978. [ages 8-13]

James, Michael A. and Knief, Lotus M. Interaction of General, Fluid, and Crystallized Ability and Instruction in Sixth-Grade Mathematics. Journal of Educational Psychology 70: 319-323; June 1978.

Instruction focused on fluid ability may be most beneficial for lower ability students learning a set rule; a focus on crystallized ability may be better for higher ability students. (grade 6)

Jansson, Lars C. A Comparison of Two Approaches to the Assessment of Conditional Reasoning Abilities. Journal for Research in Mathematics Education 9: 175-188; May 1978.

Two assessment procedures (Four Card problem tasks and a paper-pencil instrument) were found to lack concurrent validity. (grades 8, 10, 12)

Jerse, Frank W. and Fakouri, M. Ebrahim. Juvenile Delinquency and Academic Deficiency. Contemporary Education 49: 106-109; Winter 1978. [grade 6]

Johnson, Carl S. and Byars, Jackson A. Applications--Where Are You? School Science and Mathematics 78: 289-292; April 1978.

Few institutions had a course on applications in teacher training programs. (secondary preservice)

Johnson, David W.; Johnson, Roger T.; and Scott, Linda. The Effects of Cooperative and Individualized Instruction on Student Attitudes and Achievement. Journal of Social Psychology 104: 207-216; April 1978.

Cooperative learning promoted more positive attitudes toward heterogeneity among peers and toward the teacher, fellow cooperators, and conflict; higher self-esteem; more internal locus of control; and higher daily achievement. However, achievement differences favored the individualistic students after a two-month interval. (grades 5, 6)

Johnson, Janice K. and Howe, Ann C. The Use of Cognitive Conflict to Promote Conservation Acquisition. Journal of Research in Science Teaching 15: 239-247; July 1978. [grade 5]

Juraschek, W. A. The Interpretation of the Connective OR in Disjunctive Arguments. Journal for Research in Mathematics Education 9: 62-66; January 1978.

A majority of students lacking mathematical sophistication will assign an exclusive meaning to the ambiguous connective. (elementary preservice)

Kent, David. Some Processes Through Which Mathematics is Lost. Educational Research 21: 27-35; November 1978.

Analyses of how students make errors are presented through records of observations and questioning of students. (secondary, adults)

Kieren, Thomas E. and Nelson, Doyal. The Operator Construct of Rational Numbers in Childhood and Adolescence—An Exploratory Study. Alberta Journal of Educational Research 24: 22-30; March 1978.

Significant changes in performance levels and quality on six tasks involving operator representations of fractions appeared between ages 11 and 12 and particularly between ages 12 and 13. (ages 8-14)

Klein, Alice E. The Validity of the Beery Test of Visual-Motor Integration in Predicting Achievement in Kindergarten, First, and Second Grades. Educational and Psychological Measurement 38: 457-461; Summer 1978. [grades K-2]

Koff, Elissa and Mokros, Janice R. Sex-Stereotyping of Children's Judgments of Academic Success. Psychological Reports 43: 802; December 1978.

Girls' ratings for mathematics ability appear to be uniform and relatively high, while boys generally rate girls' ability lower. (grades 5, 6)

Koop, Anthony J. and Fraser, Barry J. Evaluation of History of Mathematics Materials. Australian Mathematics Teacher 34: 89-92; June 1978.

The materials were considered educationally valuable; the play was considered more valuable than the article. Students "underwent significant changes in affective and cognitive outcomes" when using the play. (grade 9, secondary teachers)

Kraner, Robert E. The Acquisition Age of Quantitative Concepts of Children from Three to Six Years Old. Journal of Experimental Education 46: 52-59; Winter 1978.

Mastery ages for 153 skills/concepts required by entering first graders were ascertained. (ages 3-6)

Kurtz, V. Ray. Kindergarten Mathematics--A Survey. Arithmetic Teacher 25: 51-53; May 1978.

Competencies expected by kindergarten teachers in Kansas are cited, with percentage of agreement. (teachers in kindergarten)

Lawson, Anton E.; Karplus, Robert; and Adi, Helen. The Acquisition of Propositional Logic and Formal Operational Schemata During the Secondary School Years. Journal of Research in Science Teaching 15: 465-478; November 1978. [grades 6, 8, 10, 12-14]

Lesser, Harvey; Degnan, Micaela O.; and Markey, Noel A. The Performance of Cultural-Familial Retardates on Conservation Tasks. Journal of Genetic Psychology 132: 153-154; March 1978. [ages 13-19 (EMRs)]

Lloyd, Dee Norman. Prediction of School Failure from Third-Grade Data. Educational and Psychological Measurement 38: 1193-1200; Winter 1978. [post-secondary]

Lowenthal, Werner et al. Correlation of Biopharmaceutics Grade and Calculation Scores in Pharmacy School with Arithmetic Skills and Mathematical Reasoning Subscores of the Pharmacy College Admission Test. American Journal of Pharmaceutical Education 42: 26-28; February 1978. [college]

Lowerre, George F.; Scandura, Alice M.; Scandura, Joseph M.; and Veneski, Jacqueline. Using Electronic Calculators with Third and Fourth Graders: A Feasibility Study. School Science and Mathematics 78: 461-464; October 1978.

Instruction of three children for a 10-week period resulted in substantial gains in achievement on a standardized test. (ages 7-9)

Luce, Sally R. and Hoge, Robert D. Relations Among Teacher Rankings, Pupil-Teacher Interactions, and Academic Achievement: A Test of the Teacher Expectancy Hypothesis. American Educational Research Journal 15: 489-500; Fall 1978. [grades 3, 4]

Lukasevich, Ann and Gray, Roland F. Open Space, Open Education, and Pupil Performance. Elementary School Journal 79: 108-114; November 1978.

Mathematics scores were highest for children in the non-open program. (grade 3)

Mabee, W. Scott. An Investigation of the Learning Disability Construct by the JAN Technique. Journal of Experimental Education 46: 19-24; Summer 1978. [elementary]

Maffei, Anthony C. Students' Attitudes of a Good Mathematics Teacher. School Science and Mathematics 78: 312-314; April 1978.

Many students felt that a good mathematics teacher is one who takes into account a student's learning difficulties; other points are also noted. (secondary)

Marjoribanks, Kevin. Birth Order, Age Spacing Between Siblings, and Cognitive Performance. Psychological Reports 42: 115-123; February 1978. [age 11]

Marjoribanks, Kevin. Ethnicity, Family Environment and Cognitive Performance. Psychological Reports 42: 1277-1278; June 1978. [age 11]

Marjoribanks, Kevin. Teacher Perceptions of Student Behavior, Social Environment, and Cognitive Performance. Journal of Genetic Psychology 133: 217-228; December 1978. [ages 11, 12, 15]

Martinko, Mark J. and Clifford, Margaret M. Conservation of Area: Piagetian Versus Discrimination Training Methods. American Educational Research Journal 15: 541-553; Fall 1978. [grade 2]

Mayer, Richard E. Effects of Prior Testlike Events and Meaningfulness of Information on Numeric and Comparative Reasoning. Journal of Educational Psychology 70: 29-38; February 1978.

No difference in ability to make inferences was found between groups given numeric or comparative questions. Meaningful stories resulted in better performance. (college)

McCully, Ron. Basic Skills Program in Phoenix. Mathematics Teacher 71: 113-116; February 1978.

Data from a minimum competency test are presented; with additional instruction, scores improved from freshman to sophomore years. (secondary)

McLeod, Douglas B.; Carpenter, Thomas P.; McCormack, Robert L.; and Skvarcius, Romualdas. Cognitive Style and Mathematics Learning: The Interaction of Field Independence and Instructional Treatment in Numeration Systems. Journal for Research in Mathematics Education 9: 163-174; May 1978.

Field-independent students did better with minimum guidance, while field-dependent students excelled with maximum guidance. (elementary preservice)

Meltzer, Lynn J. Abstract Reasoning in a Specific Group of Perceptually Impaired Children: Namely, The Learning-Disabled. Journal of Genetic Psychology 132: 185-195; June 1978. [ages 8-10]

Mercer, Maryann. The Content of Two Mathematics Achievement Subtests. School Science and Mathematics 78: 669-674; December 1978.

Two standardized tests were analyzed to ascertain the proportion of coverage of various content. (grades 3-9)

Meyer, Ruth Ann. Mathematical Problem-Solving Performance and Intellectual Abilities of Fourth-Grade Children. Journal for Research in Mathematics Education 9: 334-348; November 1978.

Six factors were identified: verbal, two induction, numerical, perceptual speed, and general mathematics. (grade 4)

Meyers, C. Edward; Macmillan, Donald L.; and Yoshida, Roland K. Validity of Psychologists' Identification of EMR Students in the Perspective of the California Decertification Experience. Journal of School Psychology 16: 3-15; Spring 1978. [elementary ? (EMRs)]

Michaels, James W. Effects of Differential Rewarding and Sex on Math Performance. Journal of Educational Psychology 70: 565-573; August 1978.

Performance of females was consistent with the differential rewarding hypotheses, whereas that of males was consistent with an alternative spontaneous competition hypothesis. (college)

Miller, Ronald and Meltzer, Lynn. The Effect of Schooling and Technology on the Cognitive Development of African Children. Genetic Psychology Monographs 98: 113-155; August 1978. [ages 9-10]

Miller, Ted L. and Sabatino, David A. An Evaluation of the Teacher Consultant Model as an Approach to Mainstreaming. Exceptional Children 45: 86-91; October 1978. [elementary]

Modjeski, Richard B. and Michael, William B. The Relationship of the General Educational Performance Index Measure to Other Indicators of Educational Development in Each of Three Samples from an United States Army Population. Educational and Psychological Measurement 38: 377-391; Summer 1978. [adults]

Moers, Fran and Harris, Jerry. Instruction in Basic Concepts and First-Grade Achievement. Psychology in the Schools 15: 84-86; January 1978. [grade 1]

Mokros, Janice R. and Koff, Elissa. Sex-Stereotyping of Children's Success in Mathematics and Reading. Psychological Reports 42: 1287-1293; June 1978.

Both sexes generally gave higher ratings to the boy who did well in mathematics and the girl who did well in reading. (grades 5, 6)

Montgomery, Laura and Bennett, Lloyd M. MINNEMAST: Is It an Acceptable Instructional Mode for Kindergarten? Science Education 62: 319-323; July-September 1978. [grade K]

Moore, Fernie Baca and Parr, Gerald D. Models of Bilingual Education: Comparisons of Effectiveness. Elementary School Journal 79: 93-97; November 1978. [grades K-2]

Moore, Warren D.; Hahn, William G.; and Brentnall, Lynn C. Academic Achievement of Gifted Children: A Comparative Approach. Exceptional Children 44: 618-619; May 1978. [grades 5-7]

Morris, Larry W.; Kellaway, Dale S.; and Smith, Donna H. Mathematics Anxiety Rating Scale: Predicting Anxiety Experiences and Academic Performance in Two Groups of Students. Journal of Educational Psychology 70: 589-594; August 1978.

Anxiety scores were found to be higher for psychology students than for mathematics students. (college)

Moyer, John C. The Relationship Between the Mathematical Structure of Euclidean Transformations and the Spontaneously Developed Cognitive Structures of Young Children. Journal for Research in Mathematics Education 9: 83-92; March 1978.

Results confirmed that mathematical and cognitive structures are not always in total accord. (ages 4–8)

Muller, D. J. Children's Concepts of Proportion: An Investigation into Claims of Bryant and Piaget. British Journal of Educational Psychology 48: 29–35; February 1978. [ages 5–11]

Niebuhr, Virginia Nunez and Molfese, Victoria J. Two Operations in Class Inclusion: Quantification of Inclusion and Hierarchical Classification. Child Development 49: 892–894; September 1978. [grades 1–3]

Oakland, Thomas. Predictive Validity of Readiness Tests for Middle and Lower Socioeconomic Status Anglo, Black, and Mexican American Children. Journal of Educational Psychology 70: 574–582; August 1978. [grades 1, 2, 4]

Packer, Janis and Bain, John D. Cognitive Style and Teacher-Student Compatibility. Journal of Educational Psychology 70: 864–871; October 1978. [college]

Page, D. Patricia and Edwards, R. P. Behavior Change Strategies for Reducing Disruptive Classroom Behavior. Psychology in the Schools 15: 413–418; July 1978. [grades 6–8]

Pagni, David L. Mathematics Classroom Procedures—A Student's Perspective. School Science and Mathematics 78: 702–704; December 1978.

A summary of students' perceptions of mathematics instruction is presented. (secondary)

Palmer, Henry B. A. Minicalculators in the Classroom—What Do Teachers Think? Arithmetic Teacher 25: 27–28; April 1978.

General results from a survey of teachers and leadership personnel are given. (in-service teachers)

Palmer, John; Carliner, Geoffrey; and Romer, Thomas. Leniency, Learning, and Evaluations. Journal of Educational Psychology 70: 855–863; October 1978. [college]

Pascarella, Ernest T. Interactive Effects of Prior Mathematics Preparation and Level of Instructional Support in College Calculus. American Educational Research Journal 15: 275–285; Spring 1978.

A significant interaction was found for prior mathematics preparation and level of support. (college)

Petrosko, Joseph M. The Quality of Standardized High School Mathematics Tests. Journal for Research in Mathematics Education 9: 137–148; March 1978.

Many tests were found to be low in common types of validity and reliability. (grades 9–12)

Pigge, Fred L.; Gibney, Thomas C.; and Ginther, John L. An Update on What Influences the Mathematical Understanding of Elementary-School Teachers. Elementary School Journal 79: 30-39; September 1978.

In nearly every comparison, mean scores of the 1975-77 group were significantly higher than the mean scores of the 1967-69 group. (elementary pre- and in-service)

Porter, Andrew C.; Schmidt, William H.; Floden, Robert E.; and Freeman, Donald J. Practical Significance in Program Evaluation. American Educational Research Journal 15: 529-539; Fall 1978.

A procedure for defining the interrelationship between instructional intentions and test characteristics is described, supported by analysis from mathematics tests. (grades 3-5)

Prigge, Glenn R. The Differential Effects of the Use of Manipulative Aids on the Learning of Geometric Concepts by Elementary School Children. Journal for Research in Mathematics Education 9: 361-367; November 1978.

Significant differences favored the treatment in which students used activities with geometric solids over paper-pencil and two-dimensional treatments. (grade 3)

Protinsky, Howard and Hughston, George. Conservation in Elderly Males: An Empirical Investigation. Developmental Psychology 14: 114; January 1978. [ages 71-74]

Rakow, Ernest A.; Airasian, Peter W.; and Madaus, George F. Assessing School and Program Effectiveness: Estimating Teacher Level Effects. Journal of Educational Measurement 15: 15-21; Spring 1978.

Reanalysis of IEA data indicated that the between-teacher-within-school variance was considerably greater for achievement than for socioeconomic status. (grade 12)

Reed, Martin and Wainman, Harry. Language Competence in Mathematics. International Journal of Mathematical Education in Science and Technology 9: 31-33; February 1978.

No correlation between performance and text understanding was found for students learning mathematics in a native or non-native language. (college)

Remick, Helen and Miller, Kathy. Participation Rates in High School Mathematics and Science Courses. Physics Teacher 16: 280-282; May 1978. [college]

Renner, John W.; Sutherland, Joan; Grant, Roalie; and Lawson, Anton E. Displacement Volume, An Indicator of Early Formal Thought; Developing a Paper-and-Pencil Test. School Science and Mathematics 78: 297-303; April 1978. [grades 7-12]

Reys, Robert E. Basic Concepts of Probability--What Do People Know? School Science and Mathematics 78: 649-654; December 1978.

NAEP data on probability items are reviewed, indicating low performance at all levels. (ages 13, 17, adults)

Richardson, Lloyd I.; Thurman, Richard L.; and Bassler, Otto C. Comparison of the Performance of First-Grade and Mentally Retarded Students on the Peabody Mathematics Readiness Test. American Journal of Mental Deficiency 83: 83-85; July 1978.

No significant differences were found between normal and retarded pupils on five of six subscales. (grade 1)

Ritter, David R. Surviving in the Regular Classroom: A Follow-Up of Mainstreamed Children with Learning Disabilities. Journal of School Psychology 16: 253-256; Fall 1978.

In reading and mathematics, children were able to maintain, with supplemental instruction, a rate of academic gain during the mainstreamed year similar to that acquired during their enrollment in a special LD program. (ages 8-12)

Robert, Michele and Charbonneau, Claude. Extinction of Liquid Conservation by Modeling: Three Indicators of Its Artificiality. Child Development 49: 194-200; March 1978. [elementary]

Rogers, Carl M.; Smith, Monte D.; and Coleman, J. Michael. Social Comparison in the Classroom: The Relationship Between Academic Achievement and Self-Concept. Journal of Educational Psychology 70: 50-57; February 1978.

Mathematics achievement was significantly related to self-concept, whether or not relative within-classroom achievement standing was considered. (ages 6-12)

Rosen, Sidney; Powell, Evan R.; Schubot, David B.; and Rollins, Patricia. Competence and Tutorial Role as Status Variables Affecting Peer-Tutoring Outcomes in Public School Settings. Journal of Educational Psychology 70: 602-612; August 1978.

Satisfaction and perceived achievement were found to be greater on becoming the tutor rather than the tutee for mathematics, particularly if one was initially the more competent partner. (grades 6, 8)

Rowsey, Robert W. and Henry, Loren L. A Study of Selected Science and Mathematics Teacher Education Majors to Assess Knowledge of Metric Measures and Their Applications. Journal of Research in Science Teaching 15: 85-89; January 1978.

Both groups understood metric relationships reasonably well, but neither could apply the relationships in everyday situations. (elementary preservice)

Rubin, Kenneth H.; Brown, Ian D. R.; and Priddle, Ruth L. The Relationships Between Measures of Fluid, Crystallized, and "Piagetian" Intelligence in Elementary-School-Aged Children. Journal of Genetic Psychology 132: 29-36; March 1978. [grades 1, 3]

Rubin, Rosalyn A. Stability of Self-Esteem Ratings and Their Relation to Academic Achievement: A Longitudinal Study. Psychology in the Schools 15: 430-433; July 1978. [ages 9, 12, 15]

Rubin, Rosalyn A. and Balow, Bruce. Prevalence of Teacher Identified Behavior Problems: A Longitudinal Study. Exceptional Children 45: 102-111; October 1978. [grades K-6]

Ruhland, David; Gold, Martin; and Feld, Sheila. Role Problems and the Relationship of Achievement Motivation to Scholastic Performance. Journal of Educational Psychology 70: 950-959; December 1978. [grades 2, 5]

Russac, R. J. The Relation Between Two Strategies of Cardinal Number: Correspondence and Counting. Child Development 49: 728-735; September 1978.

Equivalency by collinear correspondence was significantly more difficult than number conservation. (grades K-2)

Sachar, Jane. An Instrument for Evaluating Mental Arithmetic Skills. Journal for Research in Mathematics Education 9: 233-237; May 1978.

The development of the Stanford Mental Arithmetic Test is described; reliabilities for the total test range from .80 to .90. (grades 1-6)

Sagiv, Abraham. Hierarchical Structure of Learner Abilities in Verbal Computation Problem-Solving Related to Strength of Material. International Journal of Mathematical Education in Science and Technology 9: 451-456; November 1978.

Mathematical concepts and laws comprehension account for 67 per cent of the variance in the ability of students to derive a formula for solutions of one unknown variable. This derivation, plus mathematical ability, account for 89 per cent of the variance in verbal computational problem-solving ability. (grade 11)

Sagotsky, Gerald; Patterson, Charlotte J.; and Lepper, Mark R. Training Children's Self-Control: A Field Experiment in Self-Monitoring and Goal-Setting in the Classroom. Journal of Experimental Child Psychology 25: 242-253; April 1978. [grades 5, 6]

Sawada, Daiyo and Jarman, R. F. Information Matching Within and Between Auditory and Visual Sense Modalities and Mathematics Achievement. Journal for Research in Mathematics Education 9: 126-136; March 1978.

Correlations between modalities and mathematics achievement were significant, with "striking" variation over IQ levels. (grade 4)

Scandura, Joseph M.; Lowerre, George F.; Scandura, Alice M.; and Veneski, Jacqueline. Using Electronic Calculators with Children Ages 5-7, Four Mini-Experiments. School Science and Mathematics 78: 545-552; November 1978.

Exploratory activities with small groups of children indicated some content with which calculators might be used and the motivational effect of calculators. (ages 5-7)

Schuncke, George M. Social Effects of Classroom Organization. Journal of Educational Research 71: 303-307; July/August 1978. [grades 5, 6]

Seidner, Constance J.; Lewis, Sally C.; Sherwin, Noel V.; and Troll, Enid W. Cognitive and Affective Outcomes for Pupils in an Open-Space Elementary School: A Comparative Study. Elementary School Journal 78: 208-219; January 1978. [grade 6]

Sepie, A. C. and Keeling, B. The Relationship Between Types of Anxiety and Under-Achievement in Mathematics. Journal of Educational Research 72: 15-19; September/October 1978.

The measure of mathematics-specific anxiety differentiated the under-achievers from average and over-achievers more strongly than measures of general and test anxiety. (ages 11, 12)

Shannon, A. G. and Sleet, R. J. Staff and Student Expectations of Some Undergraduate Mathematics Courses. International Journal of Mathematics Education in Science and Technology 9: 239-247; May 1978.

Students pursuing a mathematics degree had some perceptions that differed from those of other students in mathematics classes. (college)

Shannon, Lael. Spatial Strategies in the Counting of Young Children. Child Development 49: 1212-1215; December 1978.

Increases with age were observed in the organization of children's counting sequences. The row or column arrangement did not affect strategy choice, but increasing the number of items caused some children to revert to a less organized count. (ages 3-6)

Shayer, M. and Wylam, H. The Distribution of Piagetian Stages of Thinking in British Middle and Secondary School Children 11-14/16 Year Olds and Sex Differentials. British Journal of Educational Psychology 48: 62-70; February 1978. [ages 15, 16]

Sheehan, Daniel S. and Marcus, Mary. Teacher Performance on the National Teacher Examinations and Student Mathematics and Vocabulary Achievement. Journal of Educational Research 71: 134-136; January/February 1978.

Higher teacher scores were associated with significantly higher levels of student mathematics and vocabulary achievement except when teacher race was controlled. (teachers in grade 1)

Shyers, Joan and Cox, David. Training for the Acquisition and Transfer of the Concept of Proportionality in Remedial College Students. Journal of Research in Science Teaching 15: 25-36; January 1978. [college]

Slinde, Jefferey A. and Linn, Robert L. An Exploration of the Adequacy of the Rasch Model for the Problem of Vertical Equating. Journal of Educational Measurement 15: 23-35; Spring 1978.

For the data from a college-entrance examination in mathematics, the model was not adequate. (college)

Smith, Lyle R. and Edmonds, Ed M. Teacher Vagueness and Pupil Participation in Mathematics Learning. Journal for Research in Mathematics Education 9: 228-232; May 1978.

The frequency of vagueness terms negatively influences achievement. (college)

Spiegel, Mona R. and Bryant, N. Dale. Is Speed of Processing Information Related to Intelligence and Achievement? Journal of Educational Psychology 70: 904-910; December 1978. [grade 6]

Stanley, Julian C. The Predictive Value of the SAT for Brilliant Seventh- and Eighth-Graders. College Board Review 106: 30-37; Winter 1977-78.

Results from the Johns Hopkins' Study of Mathematically Precocious Youth are reported. (grades 7, 8)

Steinbauer, Erika and Heller, Marc S. The Boehm Test of Basic Concepts as a Predictor of Academic Achievement in Grades 2 and 3. Psychology in the Schools 15: 357-360; July 1978. [grades 2, 3]

Strang, Louise; Smith, Monte D.; and Rogers, Carl M. Social Comparison, Multiple Reference Groups, and the Self-Concepts of Academically Handicapped Children Before and After Mainstreaming. Journal of Educational Psychology 70: 487-497; August 1978. [ages 6-10]

Swadener, Marc. Mathematics Courses for Elementary Teachers. American Mathematical Monthly 85: 678-680; October 1978.

Data on the institutions offering courses for elementary teachers are presented; many mathematics departments provide no courses for these teachers. (elementary teachers)

Swain, Merrill and Barik, Henri C. The Role of Curricular Approach, Rural-Urban Background, and Socioeconomic Status in Second Language Learning: The Cornwall Area Study. Alberta Journal of Educational Research 24: 1-16; March 1978. [grades K-2]

Thornton, Carol A. Emphasizing Thinking Strategies in Basic Fact Instruction. Journal for Research in Mathematics Education 9: 214-227; May 1978.

The use of thinking strategies to facilitate the learning of basic facts was supported. (grades 2, 4)

Touliatos, John; Lindholm, Byron W.; and Rich, Amy. Influence of Family Background on Scholastic Achievement. Journal of Experimental Education 46: 22-27; Spring 1978. [grades 3-6]

Trent, John H. Need for In-Service and Pre-Service Metric Education. School Science and Mathematics 78: 45-52; January 1978.

Teachers had little knowledge of the metric system, but were interested in metric education. (elementary and secondary teachers)

Troutman, James G. Cognitive Predictors of Final Grades in Finite Mathematics. Educational and Psychological Measurement 38: 401-404; Summer 1978.

The SAT-M was the best predictor, followed by high school rank, high school mathematics grades, and IQ. (college)

Trown, Anne. Teaching Style, Mathematics and Children. Mathematics Teaching 82: 29-31; March 1978.

Findings from two studies on the interaction of teaching method and pupil personality are discussed along with comments about the need to plan for individual needs. (ages 10, 12)

Vance, J. H. Attitudes Toward Mathematics and Mathematics Instruction of Prospective Elementary Teachers. Alberta Journal of Educational Research 24: 164-172; September 1978.

Students who have completed a content and a methods course have more informal beliefs about mathematics and how it should be taught than students beginning the content course. (elementary preservice)

Velandia, Wilson; Grandon, Gary M.; and Page, Ellis B. Family Size, Birth Order, and Intelligence in a Large South American Sample. American Educational Research Journal 15: 399-416; Summer 1978. [ages 17-18]

Verge, Charles G. and Bogartz, Richard S. A Functional Measurement Analysis of the Development of Dimensional Coordination in Children. Journal of Experimental Child Psychology 25: 337-353; April 1978. [grades K, 2, 4, 6, adults]

Versey, J. Scalogram Analysis and Cognitive Development: Evidence from a Longitudinal Study. British Journal of Educational Psychology 48: 71-78; February 1978. [ages 6, 7]

Vest, Floyd. Disposition of Pre-Service Elementary Teachers Related to Measurement and Partition Division. School Science and Mathematics 78: 335-339; April 1978.

Most preservice teachers preferred to use partition rather than measurement division word problems. (elementary preservice)

Walkerdine, Valerie and Corran, G. Cognitive Development and Educational Practice: Pupil Progress in Primary School Mathematics.

British Journal of Educational Psychology 48: 106; February 1978. [primary]

Walsh, Desmond M. and Walsh, Michael D. Relationship Between Extraversion and Neuroticism, and Intelligence for Students in Grade Nine English and Mathematics. Psychological Reports 43: 15-19; August 1978. [grade 9]

Watson, P. Styles Adopted in Solving Arithmetic Tests and Their Relationships to a Cognitive Style and Social Behaviour. British Journal of Educational Psychology 48: 107; February 1978. [age 11]

Webster, Raymond E. and Schenck, Susan J. Diagnostic Test Pattern Differences Among LD, ED, EMH, and Multi-Handicapped Students. Journal of Educational Research 72: 75-80; November/December 1978. [ages 6-17]

Wheatley, Grayson H. and Wheatley, Charlotte L. How Shall We Teach Column Addition? Some Evidence. Arithmetic Teacher 25: 18-19; January 1978.

The Direct method was faster than the look-for-tens method, although they were equally accurate. (grades 4, 7)

White, Kathleen M. and Ferstenberg, Annette. Professional Specialization and Formal Operations: The Balance Task. Journal of Genetic Psychology 133: 97-104; September 1978. [college]

White, Kathleen M.; Michel, George; Butcher, Anita L.; and Mebert, Carolyn. Sequence in Weight and Amount Conservation. Journal of Genetic Psychology 133: 241-251; December 1978. [age 6]

Whitely, Susan E. and Doyle, Kenneth O. Dimensions of Effective Teaching: Factors or Artifacts. Educational and Psychological Measurement 38: 107-117; Spring 1978. [college]

Wikoff, Richard L. and Kafka, Gene F. Interrelationships Between the Choice of College Major, the ACT and the Sixteen Personality Factor Questionnaire. Journal of Educational Research 71: 320-324; July/August 1978. [college]

Wollman, Warren T. and Lawson, Anton E. The Influence of Instruction on Proportional Reasoning in Seventh Graders. Journal of Research in Science Teaching 15: 227-232; May 1978. [grade 7]

Wood, Dorothy F. Can We Require Students to Learn? Mathematics Teacher 71: 135-139; February 1978.

Data from a minimum competency test are presented. (secondary)

Yvon, Bernard R. and Downing, Davis A. Attitudes Toward Calculator Usage in Schools: A Survey of Parents and Teachers. School Science and Mathematics 78: 410-416; May/June 1978.

Some disagreement was found in opinions on when and how calculators should be used. (teachers (K-9), parents)

Dissertation Abstracts

This final section of the listing contains 343 dissertations.

Abel, Jean Perkins. A Survey of Mathematics Learning Centers in the Public Two-Year Colleges of the United States. (University of Northern Colorado, 1977.) DAI 38A: 4635-4636; February 1978. [/730792]

Sundry findings on characteristics of learning centers were summarized. (community college)

Abramson, Marty. Identity Conservation, Equivalence Conservation and Transitive Inference of Weight and Length in Educable Mentally Retarded Children: Assessment, Training, and Generalization. (The University of Wisconsin-Madison, 1977.) DAI 38A: 6050; April 1978. [7725806]

Adair, James Hartley. An Attitude and Achievement Comparison Between Kindergarten and First Grade Children in Multi and Single Grade Classes. (Boston College, 1978.) DAI 39A: 659-660; August 1978. [7813768] [grades K, 1]

Adams, Dennis Ray. The Effect of Supplementary Geometry Units on Mathematical Attitudes and Achievement of Eighth-Grade Students. (The University of Alabama, 1977.) DAI 39A: 2109-2110; October 1978. [7818845]

The geometry units were ineffective in producing achievement or attitude changes. (grade 8)

Adrian, Marian M. The Relationship of Self-Concept of Ability Science and Mathematics Achievement and the Operative Comprehension of Reading Content. (State University of New York at Buffalo, 1977.) DAI 39A: 764; August 1978. [7813978]

A positive relationship was found between reading and mathematics achievement and between general self-concept and self-concept in mathematics. (grades 9-11)

Aiello, JoAnn. Eighth Grade Students as Teachers of Adults: In Metric Workshops. (Brigham Young University, 1978.) DAI 39A: 3351; December 1978. [7823423]

No significant difference in metric achievement was found between adults taught by students or teachers. (grade 8)

Alderman, Donald Lewis. Artificial Intelligence and Educational Psychology: A Probabilistic Computing Model for Well-Defined Problems. (The University of Connecticut, 1977.) DAI 38A: 4670; February 1978. [7731051]

Computer process measures were significant predictors of students' performance on addition tasks. (elementary)

Alexander, David William. A Clinical Diagnostic Investigation of Fundamental Reasons for Conceptual Difficulties with Algebra. (State University of New York at Buffalo, 1977.) DAI 39A: 764; August 1978. [7813995]

Success in algebra appeared to be more related to fluency in the use of imagery than the use of the Insightful-Symbolic Mode. Lack of success appeared to involve use of the Mechanical-Symbolic Mode and inadequate imagery. (grade 9)

Ali, Yvonne Brunton. The Effects of a Supportive Framework When Used with Different Instructional Models on the Self-Concept, Attitude Toward School and Achievement of Fourth, Fifth and Sixth Graders Identified as Failing in School. (The Catholic University of America, 1978.) DAI 39A: 1284; September 1978. [7816857] [grades 4-6]

Allardice, Barbara Schaefer. The Development of Representational Skills for Some Mathematical Concepts. (Cornell University, 1977.) DAI 38B: 3847-3848; February 1978. [7800095]

School-aged children used formal symbols for cardinality and relative quantity, but preferred informal (pictorial) representations. (ages 3-6)

Allen, Harvey Rorbach, Jr. The Use of Cuisenaire Rods to Improve Basic Skills (Addition-Subtraction) in Seventh Grade. (Rutgers University The State University of New Jersey (New Brunswick), 1978.) DAI 39A: 2799; November 1978. [7820308]

Students using rods improved in addition and subtraction skills significantly more than students not using rods. (grade 7)

Amthor, Geraldine Janet. Effect of Michigan Funded Chapter 3 Program upon Attainment of Reading and Mathematics Performance Objectives by Kindergarten Children in a Michigan School District. (The University of Michigan, 1977.) DAI 38A: 6418; May 1978. [7804636]

Children in the program showed a significant gain in attainment of mathematics objectives. (grade K)

Anastasi, Robert Edward. A Kindergarten Curriculum Model Built on the Perceptions of First-Grade Teachers in Randomly Selected Schools in Mississippi. (University of Southern Mississippi, 1978.) DAI 39A: 2044; October 1978. [7818950] [grades K-1]

Andersen, Edwin Dean. An Evaluation of a Teacher In-Service Program on Computer-Extended Mathematics, Grades 7-12. (University of Minnesota, 1977.) DAI 38A: 5970-5971; April 1978. [7802626]

Teachers in the institute implemented more computer activities; their students scored higher on a problem solving abilities test. (teachers in grades 7-12)

Anderson, Beverly Jacques. Facilitating the Learning of General Abstract Denotative Concepts in Mathematics. (The Catholic University of America, 1978.) DAI 39A: 3460; December 1978. [7823645]

High verbal students performed significantly better than low verbal students. Advance organizers and symbolic definitions were also studied. (college)

Anthony, Carl Preston. An Experimental Study of the Effects of Different Amounts of Homework upon Student Achievement in Algebra I, Algebra II, and Algebra III. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 4000; January 1978. [77-27,926]

Going over each homework problem in class was superior to going through similar problems. (secondary)

Ardi, Dana Beth. The Relationship of Functional Academic Achievement to the Clinical Categories of Brain Injury and Emotional Disturbance. (Boston College, 1978.) DAI 39A: 806; August 1978. [7813771] [ages 6-11]

Armstrong, James Sutton. Effects of a Preservice Professional Knowledge and Skills Course on College Mathematics Instructors and Students. (Georgia State University-College of Education, 1978.) DAI 39A: 2110; October 1978. [7817570]

No significant differences in student attitudes on achievement were found, but instructors' attitudes were affected by the training course. (college)

Arougheti, Joel Leon. The Effects of Formative Evaluation with Different Levels of Feedback and Remediation on Student Achievement and Attitude in the First Semester of Tri-Semester Algebra. (New York University, 1977.) DAI 38A: 5971; April 1978. [7803047]

Students who received knowledge of correct results scored higher than those having "instructional feedback". (grades 9, 10)

Austin, Virginia Lee. Discriminant and Descriptive Analyses of Neuropsychological, Electroencephalographic, Perinatal and Developmental History Correlates of Children with Math or Reading Disability. (The University of Wisconsin-Madison, 1977.) DAI 38B: 5554; May 1978. [7728235]

Overall, the math-disabled children had more (and more severe) deficits than the reading-disabled children. (ages 6-16)

Azouz, Abdul-Aziz Hamed. An Attitudinal Study of Mathematics Teacher Effectiveness in the Intermediate Schools of the Kingdom of Saudi Arabia. (University of Northern Colorado, 1977.) DAI 38A: 5971-5972; April 1978. [7730795] [intermediate]

Azzi, Reynaldo, Jr. The Effectiveness of an Inservice Program: Developing, Implementing, and Retaining an Activity Oriented Approach to the Teaching of Mathematics in the Elementary School. (West Virginia University, 1977.) DAI 38A: 4636; February 1978. [7732071]

Teachers developed and retained needed behaviors for implementing an activity-oriented classroom. (elementary in-service)

Bachmann, Peter Joseph. Retention Effects and Curriculum Implications of Golden Ratio Proportioned Figures. (The Pennsylvania State University, 1978.) DAI 39A: 635; August 1978. [7812032] [college]

Balestra, Dominic Joseph. Piaget's Genetic Epistemology of Mathematics. (Saint Louis University, 1977.) DAI 38A: 5517-5518; March 1978. [7800471]

It was concluded that Piaget's epistemology is "fairly adequate" if two theses are incorporated. (--)

Ballain, Myron Lee. The Effect of the "Individualized Mathematics System" on the Mathematics Achievement of Pupils in Selected Public Schools. (The University of Nebraska-Lincoln, 1977.) DAI 38A: 7103; June 1978. [7808154]

No significant differences were found between groups using IMS or "traditional" instruction. (grades 4-6)

Barnes, George Bruce. Piagetian Level of Development--Content and Process Factors. (Washington State University, 1978.) DAI 39A: 767; August 1978. [7811881]

Results from two forms of a Piagetian test, one in science-mathematics content and one "in content more familiar to college students", indicated inconsistencies with Piagetian theory. (college)

Bates, Madelaine Ann. An Investigation of the Relation Between Certain Reasoning Abilities and the Ability to Learn Certain Algebraic Operations. (Columbia University, 1978.) DAI 39A: 2110-2111; October 1978. [7819293]

Achievement in algebra was found to be directly related to ability to learn arithmetic and to cognitive operational ability. (community college)

Battista, Michael Thomas. Measuring Subjective Information in Geometry Instruction. (Purdue University, 1977.) DAI 38A: 6037; April 1978. [7803196]

Information processing behaviors of students guessing words in a geometry passage were studied at various stages of instruction. (grade 7)

Berger, Bonnie Lieverman. An Experimental Comparison of the Effects of Verbal Rote and Verbal Explanatory Teaching Procedures on Computation with Hutchings' Low-Stress Algorithm for Subtraction. (University of Maryland, 1978.) DAI 39A: 3430; December 1978. [7823985]

No significant difference in accuracy scores was found between groups taught by "verbal rote" or "verbal explanatory" instruction. (grade 3)

Berman, Dale Kleinman. Myoelectric Activity as a Measure of Mental Effort During Cognitive Tasks. (The Catholic University of America, 1978.) DAI 39B: 3032-3033; December 1978. [7824160]

Results indicated that there exists a universal or general pattern of EMG (muscle) activity as a function of time for tasks including mental arithmetic. (ages 25-40)

Bird, Ben Allan. Effect of a Systematic Drill System on Computational Ability: Of Primary Children. (Brigham Young University, 1977.) DAI 39A: 1317; September 1978. [7816188]

No significant differences in gain scores were found between groups using or not using a drill system. (grades 1-3)

Bleyer, Dorothy Rushing. An Assessment of Attitudes of Students Toward Mathematics and an Investigation of the Relationship of the Attitudes to Learning in Selected Required Mathematics Courses in a State University, a Community College, and a Technical Institute. (Southern Illinois University at Carbondale, 1977.) DAI 38A: 5972-5973; April 1978. [7804247]

A majority (58%) of the students held attitudes toward mathematics that were significantly negative, with responses "observably different" between the sexes. (college freshmen)

Boehmer, Donald Patrick. The Effect of a Monitoring System on the Math Achievement of the Educable Mentally Retarded. (Utah State University, 1978.) DAI 39A: 2864; November 1978. [7821115]

Significant differences on the criterion-referenced test favored the group using the monitoring program, although no difference was found on a standardized test. (EMRs)

Boelke, William Walter. Pattern Reproduction Among Kindergarten Children: Significance of Spatial Configuration and Structure on Reproduction of Linear and Planar Binary Patterns. (The University of Connecticut, 1977.) DAI 38A: 6584; May 1978. [7806109]

The difficulty in producing various arrays, predictors of success, and factor loadings were studied. (grade K)

Bosland, Viva Jean. Diagnostic Assessment of Addition Processes with Identification and Remediation of Error Patterns. (George Peabody College for Teachers, 1977.) DAI 38A: 4636-4637; February 1978. [7731611]

A significant difference was found in the number of systematic errors made by third and fourth graders, but two weeks of specific remediation did not result in significant differences from control groups. (grades 3-4)

Boylan, Hunter Reed. A Survey of Adoption and Implementation Practices Among Users of the Personalized System of Instruction. (Bowling Green State University, 1977.) DAI 38A: 6489; May 1978. [7805361]

Characteristics of PSI users were surveyed and summarized. (college)

Bradley, Peggy Ellen. Effects of Individual Diagnosis and Remediation in the Treatment of Children with Learning Disabilities. (University of Houston, 1978.) DAI 39B: 1932; October 1978. [7818234] [age 8]

Brannen, Pamela Parker. A Study of the Potential Role of Economics as an Applicational Area for Mathematics. (Georgia State University, 1977.) DAI 38A: 4001; January 1978. [77-29,323]

Materials on 22 economics topics were compiled, after ascertaining in a pilot study that students could use the materials but teachers were unfamiliar with economics applications. (secondary)

Bratton, George Nelson. The Effect of Heuristic Instruction on Problem Solving Ability in College Algebra. (Mississippi State University, 1977.) DAI 38A: 4001; January 1978. [77-28,535]

None of six null hypotheses pertaining to the relative effectiveness of "Polya's heuristic method" and "the traditional method" was rejected. (college)

Briggs, Billy James. The Graphical Representation of Statistical Data: Bar Charts Versus Circle Charts for Comparing Parts of a Whole. (Indiana University, 1978.) DAI 39A: 621-622; August 1978. [7812983]

No significant difference in readability was observed between (1) "conventional" bar and circle charts and (2) bar and circle charts modified to enhance perceptually their readability, although males were observed to read both charts more accurately than were females. (post-secondary)

Briggs, John Warren. A Study of Teacher Elicited Responses and Actions of Students of Seventh and Eighth Grade Mathematics Classes Related to the Achievement of These Students. (University of Northern Colorado, 1977.) DAI 38A: 4637; February 1978. [7730804]

Observations indicated that students encouraged to learn through "high level", "many", or a "variety" of actions achieved better. (grades 7, 8)

Brockmann, Ellen Mary. Memory Search Processes Used by Second-Grade Children in the Comprehension of Place Value. (Fordham University, 1978.) DAI 39A: 1395; September 1978. [7816561]

Mean reaction times on a serial search task were greater for children with weak place value skills. (grade 2)

Brook, Robert M. Ability to Recognize Nonverbal Affirmation and Negation Amongst Learning Disabled Children. (University of Kansas, 1977.) DAI 38B: 3464; January 1978. [77-28,841] [elementary ?]

Brooks, Sarah. A Comparison of the Classification of Students by Two Methods of Administration of a Mathematics Placement Test. (Syracuse University, 1977.) DAI 39A: 733; August 1978. [7811636] [community college]

Brower, Lynda Cozette. The Use of Academic and Non-Academic Variables in Predicting Grade Point Average Profiles of Black Students. (Stanford University, 1978.) DAI 39A: 737; August 1978. [7814161]

High school rank was concluded to be the most important indicator of who would survive the freshman year. (college)

Caillier, James Allen. A Comparative Study of Two Approaches to Teaching Low-Achieving Students at the College Level. (The Louisiana State University and Agricultural and Mechanical College, 1978.) DAI 39A: 1502; September 1978. [7815615]

Expectation for academic success in remedial courses was judged to be greater for students in a structured remedial program than for those in a non-structured one. (college)

Caldwell, Janet Hudson. The Effects of Abstract and Hypothetical Factors on Word Problem Difficulty in School Mathematics. (University of Pennsylvania, 1977.) DAI 38A: 4637; February 1978. [7730178]

Abstract problems were significantly more difficult than concrete problems; the factual-hypothetical factor was significant in five of six analyses. (grades 4-12)

Calvey, Sister Helen. The Effects of a Process Oriented Elementary School Science Program on Piaget's Operative Content Comprehension. (State University of New York at Buffalo, 1977.) DAI 39A: 2165-2166; October 1978. [7813981] [grades 6, 8]

Campbell, Ruby Guidroz. Number Theory Instruction as a Factor in the Learning of Computational Skills with Fractions. (The Louisiana State University and Agricultural and Mechanical College, 1977.) DAI 38A: 7192-7193; June 1978. [7807540]

No significant difference in adding and subtracting fractions was found between groups having or not having number theory instruction. Significant differences in attitude favored the full-exposure group. (grade 5)

Carey, John F. O. The Relationship Between Attitude Toward School, Sex, Intelligence, and Academic Achievement. (The University of Rochester, 1978.) DAI 39A: 2824-2825; November 1978. [7820410]

Attitude was not found to be related to mathematics achievement, but sex was related. (grades 3, 6)

Carpenter, James Edward. A Project to Develop an Introduction to Group Theory Through Examples. (Columbia University Teachers College, 1978.) DAI 39A: 2799-2800; November 1978. [7821819]

An 11-lesson unit was found to be successful in terms of both achievement and attitude. (college)

Casner, Jack Leroy. A Study of Attitudes Toward Mathematics of Eighth Grade Students Receiving Computer Assisted Instruction and Students Receiving Conventional Classroom Instruction. (University of Kansas, 1977.) DAI 38A: 7106; June 1978. [7809432]

No significant differences in attitudes toward mathematics were found between girls using or not using CAI, but boys using CAI were less negative toward mathematics. (grade 8)

Cavanaugh, James Edward. An Investigation of Structure in the Teaching and Learning of Geometry. (Boston University School of Education, 1978.) DAI 38A: 7193; June 1978. [7808053]

Teacher-communicated content was generally higher in "kinetic structure" than prose-communicated content. Students' cognitive structures changed with instruction, but were unlike teacher or prose structure. (grade 10)

Cellon, Virginia Saunders. School Variables Related to the Identification of Third Grade Outliers in Florida. (The Florida State University, 1977.) DAI 38A: 5408; March 1978. [7801466] [grade 3]

Chang, Ping-Tung. On Relationships Among Academic Performance, Sex Difference, Attitude and Persistence of Small Groups in Developmental College Level Mathematics Courses. (Georgia State University, 1977.) DAI 38A: 4002; January 1978. [77-29,325]

Small-group instructional procedures were found to have a "significantly greater positive impact" on achievement in arithmetic, elementary algebra, and combined arithmetic and algebra than a lecture-demonstration method. (college)

Chang, Un-Hyo. The Effect of Cognitive Style as a Function of Instructional Treatments on Learning Defined Concepts in Geometry. (The Florida State University, 1977.) DAI 38A: 6667; May 1978. [7804968]

Analytic students demonstrated better performance than non-analytic students. A combination of definition and positive instance was more effective than either alone. Pretraining on subordinate concepts facilitated concept learning. (grade 3)

Charles, Randall Inners. The Effects of Instancing and Prompting Moves on Learning Two Mathematical Concepts. (Indiana University, 1977.) DAI 38A: 5309-5310; March 1978. [7800147]

Training affected students' knowledge and use of moves. Use of the moves enhanced concept acquisition and clarity of the presentation. (elementary preservice)

Ciriza, Frank. The Prediction of Classroom Instruction Time Required to Pass the GED and GED Test Performance of Migrant Workers. (New Mexico State University, 1977.) DAI 38A: 4471-4472; February 1978. [7732065] [adults]

Clothiaux, Clara Ann. An Investigation into the Ordinality-Cardinality Controversy Between the Theories of Brainerd and Piaget. (Auburn University, 1978.) DAI 39A: 2111; October 1978. [7818630]

Children receiving the ordinal instructional treatment improved significantly more than those given cardinal or combined forms. However, most children used a cardinal approach in a problem situation. (grade 1)

Cohen, Carol Golden. The Effect of Lesson Verbal Structure on Student Ability to Organize and Compute Quantitative Data. (Columbia University, 1978.) DAI 39A: 2166; October 1978. [7819315] [secondary]

Cohen, Patricia Cline. A Calculating People: The Origins of a Quantitative Mentality in America. (University of California, Berkeley, 1977.) DAI 39A: 1055; August 1978. [7812528]

The development of measurement, quantification, and statistics is traced through cause and effect from colonial times to 1830. (—)

Conan, Mara Helene. Mastery of a Formal Operations Problem-Solving Strategy: A Developmental Study. (New York University, 1978.) DAI 39B: 3017; December 1978. [7824205]

The effect of training on the "focusing rule" was studied, using geometric figures and a concept-identification task. (ages 8 - adolescence)

Connell, Anna L. Analysis of Elementary Mathematics Content in State-Adopted Textbooks for Texas Intermediate Grades 1977-1981. (Baylor University, 1978.) DAI 39A: 3430-3431; December 1978. [7820665]

The extent to which 11 strands were treated in five textbook series was analyzed. (grades 4-6)

Cookson, Connie Seaman. Predicting Developmental Level from Achievement and Intelligence Scores. (Auburn University, 1977.) DAI 38A: 6615; May 1978. [7806079] [grades 4, 5]

Cooley, Larry Wayne. An Experimental Analysis of the Role of Equilibration in the Development of Conservation of Continuous Quantity. (The University of Manitoba (Canada), 1978.) DAI 39B: 1008; August 1978. [—] [elementary ?]

Cooper, Annette J. An Analysis of the Effect of the Use of a Hand-Held Calculator on Attitude and Achievement in Selected College Algebra Classes. (Oklahoma State University, 1977.) DAI 39A: 85; July 1978. [7811034]

No significant differences in attitude or achievement were found between groups in two different semesters using or not using calculators. (two-year college)

Coppus, Sally A. An Investigation into Computer Programming as an Academic Discipline Which Provides Education for Both Sides of the Brain. (University of Massachusetts, 1978.) DAI 39A: 1395-1396; September 1978. [7816249] [college ?]

Corso, Virginia Doyle. A Study of Geometry in the Kindergarten. (Columbia University Teachers College, 1977.) DAI 38A: 4637-4638; February 1978. [7732021]

Lessons on topological topics were developed and found to be successful. (grade K)

Corwin, Vera-Anne Whittier Versfelt. A Comparison of Learning Geometry With or Without Laboratory Activities Using Manipulative Aids and Paper Folding Techniques. (Wayne State University, 1977.) DAI 38A: 6584-6585; May 1978. [7805167]

No significant differences in achievement or attitudes were found between groups using or not using activities. (grade 10)

Cossio, Maria-Jesus Garcia. The Effects of Language on Mathematics Placement Scores in Metropolitan Colleges. (Columbia University Teachers College, 1977.) DAI 38A: 4002-4003; January 1978. [77-27,882]

A positive relationship between mathematics performance and second language ability was observed. (college)

Coulter, Peggy Mullins. Selected Instructional Modules Designed for Prospective Secondary Mathematics Teachers. (The University of Alabama, 1978.) DAI 39A: 2171-2172; October 1978. [7819166]

Six modules were developed, based on a model incorporating both competency and humanistic concerns. (secondary preservice)

Courtney, Dan Eugene. The Effect of Male Teachers on the Academic Achievement of Sixth Grade Father-Absent Boys. (Kansas State University, 1977.) DAI 38A: 5232-5233; March 1978. [7800807] [grade 6]

Cox, Boyd Ray. An Evaluation of the Brigham Young University Elementary Mathematics Teacher Preparation Program. (Brigham Young University, 1977.) DAI 38A: 4567; February 1978. [7731097]

Students scored significantly higher as they proceeded through the program. (elementary preservice)

Crockett, Rubie Eileene. The Relationship of "Mainstreaming" to Self Concept and Academic Achievement of the Upper Elementary Special Education Pupils in a Large Mid-West Middle School. (Indiana University, 1977.) DAI 38A: 5233; March 1978. [7801011] [ages 12-15 (EMRs)]

Crown, Warren Douglas. The Effects of Three Different Remedial Environments on the Place Value Concepts and Computation Skills of Elementary Children. (The University of Chicago, 1977.) DAI 38A: 4710-4711; February 1978. [—]

Significant differences in type of gain were found among students taught by teacher, parent, or researcher. (elementary)

Crumpton, Sharon Dietsch. A Mathematical Anxiety Reduction Project. (The University of Tennessee, 1977.) DAI 38A: 5310; March 1978. [7801992]

An increase in students' mathematical competence was accompanied by a decrease in their mathematical anxiety; non-mathematical treatments had little apparent effect on anxiety. (college)

Cuneo, Diane Oda. Children's Judgments of Numerical Quantity: The Role of Length, Density, and Number Cues. (University of California, San Diego, 1978.) DAI 39B: 3018; December 1978. [7823162]

Both length and density cues, integrated by simple algebraic rules, were used in judgments of large quantities at all age levels. (ages 3-9, adults)

Cunningham, Mark Douglas. The Effects of Bilateral EEG Biofeedback on Verbal, Visual-Spatial, and Creative Skills in Learning Disabled Male Adolescents. (Oklahoma State University, 1977.) DAI 39B: 373; July 1978. [7811037] [adolescents]

Cypher, Terrance Ralph. A Study of Selected Characteristics of the Public Secondary Mathematics Teachers of Montana. (Montana State University, 1977.) DAI 38A: 7193-7194; June 1978. [7808304]

Background levels and class loads were among the data obtained. (secondary in-service)

Daughdrill, Roy Wilson. A Comparative Study of the Effectiveness of Computer-Assisted Instruction in College Algebra. (The University of Mississippi, 1978.) DAI 39A: 3431; December 1978. [7824040]

No significant difference in achievement was found between groups using or not using the computer to aid in problem solving. (college)

Daugherity, Walter Chisholm. The Ordering of Topics in Teaching Mathematics. (Harvard University, 1977.) DAI 39A: 3431; December 1978. [7823675]

A hierarchy, presumably on computation, was evaluated. (grade 2)

Davenport, Nancy Jo Garside. Cardiovascular Function During a Reaction Time Task and Mental Arithmetic. (The George Washington University, 1978.) DAI 39B: 96-97; July 1978. [7810144] [adults ?]

David, Lloyd. An Alternative High School Diploma Program for Adults. (Harvard University, 1977.) DAI 38A: 4473-4474; February 1978. [7730679]

The described program includes the requirement that each person pass a mathematics examination (understanding of whole numbers, fractions, decimals, and percentages). (adults)

Davis, Jane Hawk. A Study of the In-Service Education Program of Elementary School Teachers in Knoxville City Schools. (The University of Tennessee, 1977.) DAI 38A: 3905; January 1978. [77-27,653] [elementary in-service]

Davis, Shirley McQuade. Effect of Sequence on Learning of Addition and Subtraction of Integers. (Michigan State University, 1978.) DAI 39A: 1396; September 1978. [7815113]

Few significant differences were found for treatments varying the addition-subtraction sequence. Retention of addition dropped when subtraction intervened. (elementary)

Days, Harold Charles. The Effect of Problem Structure on the Processes Used by Concrete- and Formal-Operational Students to Solve Verbal Mathematics Problems. (Purdue University, 1977.) DAI 38A: 6038; April 1978. [7803213]

Formal students used a larger variety of problem-solving processes than concrete students. (grade 8)

Dejarnette-Ondrus, Patricia Sue. A Study of the Effect of a Laboratory Approach in Conjunction with Classroom Instruction on Student Performance in and Attitude Toward Mathematics. (The University of Toledo, 1977.) DAI 39A: 3432; December 1978. [7822024]

No differences were found in achievement, but the laboratory group had better attitudes than the lecture-discussion group. (grade 9)

DeLoatch, Sandra Jean. A Comparative Study of Use of Computer Programming Activities in an Introductory College Mathematics Course for Disadvantaged Students. (Indiana University, 1977.) DAI 38A: 6585; May 1978. [7805629]

Computer-augmented instruction was observed to have a significant positive effect on the mathematical attitudes of disadvantaged students, but not upon their achievement. (college)

Denenberg, Stewart Allen. An Alternative Curriculum for Computer Literacy Development. (University of Massachusetts, 1978.) DAI 39A: 187-188; July 1978. [7810708] [secondary ?]

Dianna, Michael A. Effects of an Open Classroom Instructional Program Versus a Traditional Classroom Instructional Program on the Academic Achievement and Attitude Toward School of Elementary School Children. (Temple University, 1978.) DAI 39A: 2024; October 1978. [7817377] [grades 3, 5]

Dorsey, Alberta Ruth. Development and Evaluation of Instructional Modules for the Early Childhood Educator Utilizing Selected Aspects of the Theory of Piaget. (University of Pittsburgh, 1977.) DAI 38A: 5401; March 1978. [7801799] [elementary]

Doyle, Beverly Ann. The Relationship Between Self Concept and School Achievement Maternal Self Esteem and Sensory-Integration Abilities in Learning Disabled Children, Ages 7-12. (The University of Nebraska-Lincoln, 1977.) DAI 38A: 7267-7268; June 1978. [7808159] [ages 7-12]

Doyle, Jerry James. An Investigation of Piaget's Infralogical Groupings Dealing with Projective Space. (The University of Iowa, 1977.) DAI 38A: 4070-4071; January 1978. [77-28,446] [grades 3, 6, 9]

Dubriel, John Benjamin. A Study of Two Plans for Utilization of Class Time in First Year Algebra. (University of Missouri-Columbia, 1977.) DAI 38A: 4638; February 1978. [7731719]

The group having 70 per cent developmental work and 30 per cent practice had higher achievement and retention scores than the 30-70 or control groups. No differences in the amount of time spent on developmental activities were found before or after the treatment period. (grade 9)

Duval, Concetta Angeli. Differential Teacher Grading Behavior Toward Female Students of Mathematics. (The University of Rochester, 1978.) DAI 39A: 2800; November 1978. [7820412]

The existence of teacher bias against females was not supported by this study in which teachers graded a geometry test. (secondary in-service)

Dyce, Byron Alphonso. The Effect of Incorporating the Mini- or Hand-Held Calculator into a Community/Junior College Basic Mathematics Course. (The University of Florida, 1977.) DAI 39A: 43; July 1978. [7810942]

Analysis of pre-posttest data from four classes using calculators indicated that "there was insufficient evidence to conclude that there was any particular advantage to using mini-calculators". (community/junior college)

Eckmier, Janice Logan. An Investigation of the Use of Calculators with Low Achieving 4th Grade Students in Mathematics Achievement and Attitude. (University of Southern California, 1978.) DAI 38A: 7109; June 1978. [—]

No significant differences in attitude or achievement gains were found between calculator and non-calculator groups. (grade 4)

Ehnis, Carol R. Visual and Auditory Memory Components of Reading and Arithmetic in Learning Disabled Children. (New York University, 1977.) DAI 38B: 6145-6146; June 1978. [7808521]

Arithmetic scores were significantly correlated with performance on a visual sequential memory task. (ages 8-11)

Elman, Annalee. Within- and Between-Mode Translation in Euclidean Geometry. (Stanford University, 1978.) DAI 39A: 771; August 1978. [7814170]

In this study of some factors thought to influence processing of geometric diagrams and statements, certain within-subjects factors attained significance. (grade 11)

Endicott, Francine Marie. Free-Choice Selection of Arithmetic Rules on a Sequence of Items After Prescribed Practice. (University of Pennsylvania, 1978.) DAI 39A: 1396; September 1978. [7816299]

Over half of the students exhibited rule selection behaviors on "artificial tasks" (grades 9 and 10) or addition and multiplication tasks (grade 4). (grades 4, 9, 10)

Faw, Phyllis Jean. A Study of the Development of the Ability of Selected Students to Visualize the Rotation and Development of Surfaces. (The University of Oklahoma, 1977.) DAI 38A: 5414; March 1978. [7732860]

Differences at each grade level and between ability groups and sexes were reported before and after training. (grades 6, 8, 10)

Fayock, Paula Marie. The Relationship Between Cognitive and Non-Cognitive Measures and Employment in Mathematically Related Careers Among Female and Male Project Talent Participants. (The Pennsylvania State University, 1977.) DAI 38A: 5882-5883; April 1978. [7803322]

On cognitive and non-cognitive measures, those that discriminate between mathematicians and non-mathematicians were found to be different for females and for males. (post-secondary)

Ferguson, Laurel Celestine Charleston. An Exploratory Investigation of Actual and Allotted Instructional Time. (University of Illinois at Urbana-Champaign, 1978.) DAI 39A: 2721; November 1978. [7820930]

The major portion of the school day was devoted to language arts and arithmetic. Other findings on use of time are also reported. (grade 5)

Fischer, Joan Keller. A Comparison of High School Senior and Candidate Performance on the Tests of General Educational Development. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 3878-3879; January 1978. [77-27,938]

The mathematics test was found to be significantly more difficult than the other four GED tests. (adults)

Fisher, Naomi Dove. Visual Influences of Figure Orientation on Concept Formation in Geometry. (Northwestern University, 1977.) DAI 38A: 4639; February 1978. [7732300]

Students consistently emphasized the upright orientation of figures, regardless of instructional experiences. (grades 6, 9, college)

Fisher, Stanley. The Role of Illustrative Errors in Learning to Solve Problems. (City University of New York, 1977.) DAI 38A: 4042; January 1978. [77-28,649] [mean age 16]

Fitzgerald, Mary Lee. The Relation Between Field-Dependence-Independence and Student Attitude and Achievement in an Open Space Elementary School. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 6518-6519; May 1978. [7804592] [grades 4-5]

Flower, Terrence Frederick. Evaluation of a Program for Training Metric Inservice Teacher-Leaders. (University of Wyoming, 1977.) DAI 38A: 5375-5376; March 1978. [7800170]

The training was effective in producing gains in content knowledge and in helping teachers to "think metric". (in-service)

Flowers, James Roy. A Comparative Study of Students in Open Space Individually Guided Education (IGE) and Traditional Schools. (University of Northern Colorado, 1977.) DAI 38A: 4679-4680; February 1978. [7730818] [grade 3]

Foshay, Wellesley Robinson. The Multivariate Prediction of Individual Differences in Academic Achievement: A Model-Governed Study. (Indiana University, 1977.) DAI 38A: 4681; February 1978. [7730290]

SAT mathematics scores accounted for four per cent of the variance in the prediction of final grades in courses. (college)

Fowler, Evelyn Cherry. A Study Interrelating Situational Problem Solving, Mathematical Model Building, and Divergent Thinking Among Gifted Secondary Mathematics Students. (Georgia State University-College of Education, 1978.) DAI 39A: 2111-2112; October 1978. [7817574]

Both linear and spiral teaching groups scored significantly higher than the control group in applying the heuristics of situational problem solving. Differences between the two groups were noted. (secondary)

Fowler, Patrick Crittendon. Multivariate Assessments of the Effects of Early Father-Absence on the Educational Preparedness and Academic Achievement of Black Children. (University of Virginia, 1977.) DAI 38A: 4043; January 1978. [77-28,616] [grades K-2]

Fulmer, James Robert. An Analysis of an Innovative Mathematics Program for Teaching Low Achievers in the Junior High School. (University of Arkansas, 1978.) DAI 39A: 3432; December 1978. [7823220]

Some attitude and achievement differences were noted between classes using "Stretchers and Shrinkers", "Motion Geometry", or regular materials. (grades 7, 8)

Gabbard, Carl Peter. The Effects of Physical Exertion on Immediate Classroom Mental Performance of Second-Grade Elementary School Children. (North Texas State University, 1977.) DAI 38A: 7209; June 1978. [7807829] [grade 2]

Gaines, James Young. A Study of the Relationship of Selected Teacher Verbal Behaviors and Student Attitude of Title I Children. (Fordham University, 1977.) DAI 38A: 3833; January 1978. [77-28,078] [grades 2-4]

Gajar, Anna Helen. Characteristics and Classification of Educable Mentally Retarded Learning Disabled and Emotionally Disturbed Students. (University of Virginia, 1977.) DAI 38A: 4090-4091; January 1978. [77-28,644] [elementary (EMRs)]

Gallery, Michael Edward. Teaching Calculator Use and Checking Account Skills to the Mildly Handicapped. (Utah State University, 1978.) DAI 39A: 2866; November 1978. [7821130]

The calculator group scored higher than the non-calculator group. (secondary)

Gast, Richard Henry. Game Theory for the Secondary School Mathematics Curriculum. (Columbia University Teachers College, 1977.) DAI 38A: 4639; February 1978. [7732024]

Students were able to master the objectives of the developed units. (grades 8, 10, 12)

Geer, Charles Paul. The Effects of Cross-Age Tutoring on the Achievement and Self-Concept of Low-Achieving Students. (Arizona State University, 1977.) DAI 38A: 5909; April 1978. [7803425]

No significant differences in mathematics or reading achievement were found between tutored or untutored groups. Tutoring did improve self-concept. (grades 1-4, 6)

Geimer, F.S.C., Brother Richard Lawrence. An Evaluative Study of the Usage and Values of Mathematics Resource Centers in Catholic Secondary Schools. (Saint Louis University, 1977.) DAI 38A: 5310; March 1978. [7800488]

At least 70 per cent of the students queried used the center in some way, with eight per cent making daily use of it. (grades 9-12)

Generes, Louis Florval, III. The Effects of Instructional Games and a Competitive Reinforcement Pattern on the Learning of Basic Multiplication Facts and Algorithms for Middle Grade Mathematics Students. (University of New Orleans, 1977.) DAI 39A: 87; July 1978. [7809779]

No significant difference in multiplication achievement was found between teams-game and "interpersonal" competition, but individual competition resulted in better achievement than did not using games at all. (middle grades)

Gerling, Max Otto. The Effects of Two Types of Visual Stimuli on First and Second Graders' Perceptions of Addition and Subtraction Number Sentences. (The Florida State University, 1977.) DAI 38A: 5310-5311; March 1978. [7801479]

Second graders performed significantly better than first graders on combined videotape and picture sequence scores. (grades 1-2)

Gessner, Judith Kirmayer. Sex and Attitudes Toward Women as Factors Affecting Attitudes Toward Mathematics of Elementary School Teachers in Two Districts of New Jersey. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 4003; January 1978. [77-27,943]

Attitudes toward women's roles affected attitude toward mathematics. (elementary in-service)

Giesbrecht, Edwin Cornelius. The Attainment of Selected Mathematical Competencies by High School Students in Saskatchewan. (The University of Saskatchewan (Canada), 1977.) DAI 39A: 2722; November 1978. [—]

Some significant differences for certain grades, programs, school size, and sex were noted. (grades 9-12)

Gironda, Ronald Joseph. Equivalency of WISC and WISC-R Scores Related to Achievement of Urban Educable Mentally Retarded Students. (Fordham University, 1978.) DAI 38A: 7228; June 1978. [7808997] [elementary (EMRs)]

Gooden, Curtis Lee. Some Effects of Using Minicalculators in an Arithmetic Course on the Attitude Towards Mathematics and the Mathematics Achievement of Community College Students. (Kent State University, 1978.) DAI 39A: 2800-2801; November 1978. [7821677]

Use of calculators as an instructional aid was no more effective than using pencil-and-paper techniques to increase mathematics achievement. No significant loss of proficiency with paper-and-pencil skills resulted from calculator use. (community college)

Goodrum, Lloyd Smith, Jr. The Relationship of the Difference Between Arithmetic Computation and Word-Problem Solving Scores and Teacher Ratings of Oral Language Performance for Fourth-Grade Students. (Duke University, 1978.) DAI 39A: 2801; November 1978. [7821307]

A decrease in computation-minus-word-problem scores of boys, but not girls, was significantly related to an increase in oral language performance. (grade 4)

Gordon, Bobby Will. A Profile of High and Low Achievers in Mathematics Among Selected Sixth-Grade Students. (Duke University, 1977.) DAI 38A: 4639-4640; February 1978. [7731667]

All factors studied were found to be related to students' levels of achievement. (grade 6)

Graham, Verdell Gertrude. The Effect of Incorporating Sequential Steps and Pupil-Constructed Problems on Performance and Attitude in Solving One-Step Verbal Problems Involving Whole Numbers. (The Catholic University of America, 1978.) DAI 39A: 2028; October 1978. [7817588]

Strategies which varied problem-solving procedures appeared to be more effective than strategies employing a set of guidelines or steps. (grades 5-6)

Greenwood, Michael Earl. Effects of Small Group Help Sessions on an Individualized Program in Community College Mathematics. (Univer (University of Illinois at Urbana-Champaign, 1977.) DAI 38A: 6044-6045; April 1978. [7804005]

No significant differences on most criterion measures were found between groups given help by the regular instructor or another instructor, or given no help. (community college)

Grimshaw, William Frederick. The Effects of the Community Education Program on Student Academic Achievement. (The University of Michigan, 1978.) DAI 39A: 3318; December 1978. [7822902] [grades 2, 4, 6]

Gross, George Ross. A Study of the Influence of Formal High School Science and Math Course Participation, Sex, and IQ on Level of Cognitive Development as Measured by Standard Piagetian and Alternate Tasks. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 4071; January 1978. [77-27,945] [grade 12]

Gross, Lucille Madeline. Relationships Between Reading Achievement, Knowledge of Specific Study Skills, and Success in the Content Areas for Seventh-Grade, Middle School Students. (Temple University, 1978.) DAI 39A: 2116-2117; October 1978. [7817383] [grade 7]

Grossman, Ira. Contingent Stimuli and Order of Presentation as Determinants of Learning Arithmetic. (California School of Professional Psychology, San Diego, 1975.) DAI 38B: 4457; March 1978. [—]

Rate of learning may be hampered by instructing a student to "review" an earlier assignment because of errors on a current assignment. (grade 2)

Gullen, George Edgar, III. Set Comparison Tactics and Strategies of Young Children in Kindergarten, First Grade and Second Grade. (Wayne State University, 1977.) DAI 38A: 6585-6586; May 1978. [7805185]

Five tactics and 12 strategies were used by children to compare sets in terms of "more" or "same number". Differences in their use were noted. (grades K-2)

Guthrie, Edgar Raymond. Effects of an Advance Organizer on Three Strategies Used in Teaching a Disjunctive Concept. (Texas A&M University, 1978.) DAI 39A: 2028-2029; October 1978. [7817182]

For the particular disjunctive concept involved, it was concluded that any one of the six teaching strategies investigated will enhance attainment of the concept. (college)

Hall, Eleanor Grace Perry. Sex Differences in IQ Development and Correlated Variables for Intellectually Gifted Students. (The University of Michigan, 1978.) DAI 39A: 775; August 1978. [7813662] [elementary, secondary]

Ham, Wayne Albert. Effects of a Volunteer Tutor Program on Self-Esteem and Basic Skills Achievement in the Primary Grades of a Southern Rural School System. (The University of Florida, 1977.) DAI 38A: 6497-6498; May 1978. [7806704] [grades 1-3]

Hamzeh, Ghazi Salih. Effects of Two Testing-Feedback Procedures on the Mastery Learning of Mathematics Required of Preservice Elementary School Teachers. (The Pennsylvania State University, 1977.) DAI 38A: 5884; April 1978. [7803329]

No significant differences between groups given one or up to three tests with feedback were found in achievement, retention, or study time. (elementary preservice)

Hartley, Susan Strait. Meta-Analysis of the Effects of Individually Paced Instruction in Mathematics. (University of Colorado at Boulder, 1977.) DAI 38A: 4003-4004; January 1978. [77-29,926]

Meta-analysis methodology was used to synthesize findings from 153 studies pertaining to four techniques for mathematics instruction: computer-assisted instruction, cross-age and peer tutoring, individual learning packets, and programmed instruction. (?)

Hayatgheib, Khosrov. A Study of the Relationship Between Tendency to Teach Mathematics Inductively and Creative Thinking. (University of Houston, 1978.) DAI 39A: 2112; October 1978. [7818222]

No significant relationships were found between creative thinking and the tendency to teach mathematics inductively. (elementary preservice)

Hayden, Joseph Dunstan. The Effectiveness of Instance Helps in Rule-Using Activities in Learner-Controlled Computer-Assisted Instruction. (The Catholic University of America, 1978.) DAI 39A: 2209; October 1978. [7818524] [adults]

Heatherly, Franklin Davis. A Determination of Cognitive Growth of Selected Students and Teachers Using a Prototypic Metric Program. (The University of Alabama, 1977.) DAI 39A: 90; July 1978. [7809858]

It was found that the majority of the students had some knowledge of metrics prior to participation in the program, but the program was effective in increasing the knowledge of both students and teachers. (elementary ?)

Heaton, Kent Roger. A Guided Studies Program: For Under-Achieving Students at the Community College. (Brigham Young University, 1978.) DAI 39A: 3266-3267; December 1978. [7823415] [community college]

Hebbeler, Kathleen Marie. The Development of Addition Problem Solving in Young Children. (Cornell University, 1978.) DAI 38B: 6117-6118; June 1978. [7809489]

Preschool children could solve addition problems, although accuracy increased with grade level. Counting was the most frequently used strategy among the three youngest groups, systematically replaced by use of number facts over grades 1 and 2. (prekindergarten, grades K-2)

Heil, Edith Sortor. Correlational Study of the Wide Range Achievement Test, Peabody Individual Achievement Test, and the Key Math Diagnostic Arithmetic Test with Learning Disabled Children with a Modality Deficit. (Texas Woman's University, 1977.) DAI 38A: 5394; March 1978. [7801760]

Learning disabled children with auditory modality deficits made significantly higher scores on the WRAT and PIAT than on the Key Math test; those with visual modality deficits had moderately higher scores on the Key Math test. (ages 8-11)

Herman, Joan Leslie. The Relationship of Individualized Instruction Variables and Second Grade Students' Reading, Mathematics and Affective Outcomes. (University of California, Los Angeles, 1977.) DAI 38A: 6667-6668; May 1978. [7806489]

SES was positively related and whole-class instruction was negatively related to achievement in mathematics. Other mixed findings failed to provide a satisfactory fit for a logically developed model. (grade 2)

Hopkins, Billy Lynn. The Effect of a Hand-Held Calculator Curriculum in Selected Fundamentals of Mathematics Classes. (The University of Texas at Austin, 1978.) DAI 39A: 2801; November 1978. [--]

Students using calculators for instruction gained equally as well in computation and significantly higher in problem solving as students not using calculators. (grade 9)

Horak, Virginia Witt. The Effects of Inductive-Deductive Teaching Methods and Field-Dependence-Independence Cognitive Style upon Student Achievement in Mathematics. (The University of Iowa, 1977.) DAI 39A: 169; July 1978. [7810352]

The inductive method was found to be better for producing transfer of learning in new situations. Field-dependent students learned better with an inductive method. (elementary preservice)

Hornblum, Judith Newman. Death Concepts in Childhood and Their Relationship to Concepts of Time and Conservation. (Temple University, 1978.) DAI 39A: 2146; October 1978. [7817306] [ages 4-5, 7-8, 10-11]

Howell, Kenneth Burch. A Skeletal Development of Introductory Differential and Integral Calculus for One Variable, Utilizing Logic, Model Theory and Non-Standard Analysis. (Auburn University, 1977.) DAI 38A: 6586; May 1978. [7806084] [college]

Hudgins, Edward Wren. Effects of an Affective Educational Program on the Self Concept, Adjustment, and Achievement of Fourth Graders. (University of Washington, 1978.) DAI 39B: 2963; December 1978. [—] [grade 4]

Huff, Ronald Overt. The Effect of Prekindergarten Experiences on the Intellectual and Academic Performance of Culturally Deprived Children. (Drake University, 1977.) DAI 38A: 4031; January 1978. [77-28,814] [grade 1]

Hurley, Alfred, Jr. The Effect of General Attentional and Specific Relevant Cue Training on Several Piagetian Tasks of Number Development. (New School for Social Research, 1978.) DAI 39B: 2541; November 1978. [7820600] [grade K]

Jackson, Dennis Lee. A Factor Analytic Process to Academic Needs Assessment. (University of Miami, 1978.) DAI 39A: 1956-1957; October 1978. [7818728] [grade 5]

Jemmott, Rupert. The Use of Internal-External Locus of Control in the Prediction of Academic Success of Disadvantaged Black College Students. (Columbia University Teachers College, 1978.) DAI 39A: 2834; November 1978. [7821276] [college]

Johns, Antoinette Frances. Classification Tasks with the Mentally Retarded and Their Predictor Variables for Success. (University of Northern Colorado, 1977.) DAI 38A: 4731; February 1978. [7730836] [ages 9-59 (EMRs)]

Johnson, Harry Dean. The Relationship of Piagetian Stage of Cognitive Development to Success in College Algebra. (Kansas State University, 1977.) DAI 39A: 169-170; July 1978. [7811422]

No significant relationship was found between success in college algebra and Piagetian stage of cognitive development, with the latter being of little value in predicting the former. (college)

Johnson, Philip Alfred. The Cost-Effectiveness of Educational Programs in Language Arts, Mathematics, Science, and Social Studies in the Cheboygan Area Schools. (The University of Michigan, 1978.) DAI 39A: 575; August 1978. [7813674]

The average cost/effectiveness ratio for mathematics was .946. Ratios were high in grades 10-12 and low in grades 2-8. (grades 2-12)

Johnson, William Henry, Jr. A Comparative Study of Achievement, Motivation, and Self-Concept of High School Students in Open-Space and Self-Contained Classrooms. (The George Washington University, 1977.) DAI 38A: 5220-5221; March 1978. [7801734]

Students studying mathematics in open-space classrooms achieved better growth than those studying in self-contained classrooms. (secondary)

Johnston, William Francis. Interrelationships of Fourth-Grade Teachers' and Pupils' Comprehension of the Distributive Property of Multiplication Over Addition in the Set of Whole Numbers. (The University of Wisconsin-Madison, 1977.) DAI 38A: 5973; April 1978. [7725826]

A significant positive correlation was found between teachers' and pupils' distributivity scores, but this was influenced by IQ scores. A significant correlation was also found between distributivity scores and success on two- and three-digit multiplication. (teachers, grade 4)

Jolly, Richard Donald. A Study of the Use of a Laboratory Approach to the Teaching of Selected Concepts of Perimeter, Area, and Volume, to Seventh Grade Students. (Auburn University, 1977.) DAI 38A: 6586; May 1978. [7806085]

No significant difference in achievement was found between total groups taught by a laboratory approach or lecture-discussion, although male students scored significantly higher using a laboratory approach. (grade 7)

Jones, Annie S. Mathematics Achievement of Children in Title I Open Space and Title I Traditional, Non Open Space, Elementary Schools. (The University of Maryland, 1977.) DAI 38A: 3933; January 1978. [77-28,740]

On only two sub-hypotheses did differences in mathematics scores favor one group, students in traditional, non-open-space schools. (grade 3)

Josephson, Donald Andrew. Interaction of an Advance Organizer and Perceptual Style in the Learning and Retention of Mathematics. (The University of Oklahoma, 1978.) DAI 39A: 2112-2113; October 1978. [7817902]

For a particular antidifferentiation, use of an advance organizer facilitated neither initial learning nor retention; however, use of an advance organizer facilitated retention by haptic individuals better than by visual individuals. (college)

Juarez, Jacinto Pablo. American College Test (ACT) Scores and High School Grade Point Average as Predictors of Performance on the Nursing State Board Test Pool Examination. (East Texas State University, 1978.) DAI 39A: 1279; September 1978. [7816614] [junior college]

Karimpour, Rahim Ghannadi. Programs for the Improvement of the Secondary School Mathematics Teacher Education in Iran. (University of Oregon, 1977.) DAI 38A: 6069; April 1978. [7802533] [secondary in-service]

Kasnic, Michael James. The Effect of Using Hand-Held Calculators on Mathematical Problem-Solving Ability Among Sixth Grade Students. (Oklahoma State University, 1977.) DAI 38A: 5311; March 1978. [7801276]

No significant differences in number of problems completed or correct answers were found between groups using or not using calculators, nor were there differences between low and high ability groups. (grade 6)

Kazarian, Shirley M. The Allocation, Distribution, and Use of School Time by Elementary Teachers in Selected Subject Areas. (University of California, Los Angeles, 1977.) DAI 38A: 6520; May 1978. [7806498] [elementary in-service]

Keating, Robert Thomas. An Evaluation of a Unit Curriculum for an Undergraduate Course in Remedial Mathematics. (Fordham University, 1977.) DAI 38A: 3896-3897; January 1978. [77-28,082]

The "unit curriculum mastery approach" was judged to be more effective than the "traditional" approach. (community college)

Kelly, Thomas Francis. Differential Verbal Quantitative Achievement and Self-Attribution in College Bound High School Students. (Fordham University, 1978.) DAI 38A: 7232-7233; June 1978. [7809006] [grades 11, 12]

Kendall, Marian Scott. The Interaction of Secondary Teacher Verbal Aptitude and Personality Characteristics with Pupil Verbal Ability and Student Achievement. (Kent State University, 1977.) DAI 38A: 6014-6015; April 1978. [7802770] [secondary in-service]

Kennard, Douglas Flemming. An Investigation of Some Factors Influencing the Development of Spatial Relationships in Young Children. (The Ohio State University, 1978.) DAI 39A: 658-659; August 1978. [7812351] [preschool, grades K, 2]

Kleinman, Joel Marshall. Haptic Perceptual Search: The Effects of Conservation Status, Reflection-Impulsivity, and Systematic Search Training. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38B: 5613-5614; May 1978. [7805096] [ages 6, 7]

Klotz, Elaine Downer. A Survey and Analysis of Metric Inservice Training Needs of Elementary Teachers in Mississippi. (The University of Mississippi, 1978.) DAI 39A: 3353-3354; December 1978. [7824053]

Teachers need and want metric in-service training. (elementary in-service)

Knudsen, James Bruce. The Relationship of Conformity and Non-Conformity in Children to Preference for and Achievement in Mathematics and Spelling. (The University of North Dakota, 1977.) DAI 38A: 6621; May 1978. [7805414]

Neither conformity nor non-conformity appeared to be associated with mathematics achievement or preference. (grades 3-6)

Kobrin, Beverly. The Hand-Held Calculator: Effects on Intermediate Grade Mathematics Achievement. (Brigham Young University, 1978.) DAI 39A: 3354; December 1978. [7823434]

No significant difference in achievement was found between calculator and non-calculator groups. (grades 4-6)

Kongsasana, Prasit. Metric Attitude and Achievement of Preservice Elementary Teachers as a Result of Three Instructional Approaches. (The Pennsylvania State University, 1978.) DAI 39A: 2033-2034; October 1978. [7818772]

Few significant differences were found between groups using three modules for metric instruction. (elementary preservice)

Koos, Jerry Alan. A Comparison of Reading and Mathematics Achievement of Seventh Grade Students Enrolled in a Block Time Schedule and Seventh Grade Students Enrolled in a Traditional Schedule. (Ball State University, 1977.) DAI 38A: 5826; April 1978. [7803825]

Students in the two time schedules scored equally well on a mathematics test. (grade 7)

Krakow, Joanne Birkhold. Concrete Operational Development, Figurative Thought and Arithmetic Achievement in Learning Disabled Boys. (Boston University Graduate School, 1978.) DAI 39B: 2476-2477; November 1978. [7819815]

The relationship between concrete operational reasoning and arithmetic achievement was confirmed. (mean age 10.8)

Kruglick, Karen F. Systematic Desensitization of Test Anxiety in Children by Elementary School Teachers. (The Florida State University, 1977.) DAI 38A: 7286; June 1978. [7808961] [teachers in grade 5]

LaCoste, Mary Brodrick. The Effects of a Conservation Training Procedure on Educable Mentally Retarded Youth. (University of New Orleans, 1977.) DAI 38A: 4095; January 1978. [77-25,419] [ages 12-14 (EMRs)]

Laursen, Kay William. Use of Calculators in High School General Mathematics: A Study Comparing Achievement, Attitude, and Attendance of General Mathematics Students Who Used Calculators with Students Who Did Not. (Brigham Young University, 1978.) DAI 39A: 733; August 1978. [7813828]

Students using calculators made greater achievement gains. No significant differences in attitude or attendance were found. (grade 9)

Lawson, Glen Allen. Number, Language and Cognitive Development. (McMaster University (Canada), 1978.) DAI 39B: 3023; December 1978. [—]

Some children consistently used a length strategy while others used a number strategy to judge both number and length. (ages 3-7)

Lawson, Thomas James. A Study of the Calculator's and Altered Calculator's Effect upon Student Perception and Utilization of an Estimation Algorithm. (State University of New York at Buffalo, 1977.) DAI 39A: 647; August 1978. [7813985]

Use of calculators did not affect performance in estimation. Students of lowest ability made the most errors when using calculators, compared with other ability levels. (grade 7)

Lee, Jong Seung. The Effects of Process Behaviors on Problem-Solving Performance in Various Tests. (The University of Chicago, 1978.) DAI 39A: 2149; October 1978. [—]

The quality of process behaviors and problem-solving performance are causally linked. Process training helped students to become better problem solvers. (grade 9)

Lee, Kil S. An Exploratory Study of Fourth Graders' Heuristic Problem Solving Behavior. (University of Georgia, 1977.) DAI 38A: 4004; January 1978. [77-29,779]

Groups taught heuristics used them noticeably more and achieved significantly more correct solutions than control groups did. (grade 4)

Lindeman, Benjamin Henry. A Study of Entry Level Competencies Needed by Mathematics Teachers of the Secondary School as Perceived by Selected Groups of Educators. (State University of New York at Albany, 1977.) DAI 38A: 4004-4005; January 1978. [77-29,172]

There was considerable agreement among four referent groups regarding the importance of the competencies studied. (secondary in-service)

Lloyd, Baird Wigton. The Identification of Cognitive Abilities Needed by Students for Success in a First-Level College Chemistry Course for Science Majors. (Georgia State University-School of Education, 1977.) DAI 38A: 4072; January 1978. [77-29,314] [college]

Lockwood, Robert Eugene. The Development and Application of a Procedure for the Validation of Criterion-Referenced Tests. (The University of Alabama, 1977.) DAI 39A: 2207; October 1978. [7818877]

A comparison of classification between external indices of mastery and item performance to validate criterion-referenced tests was found to be feasible. (grade 5)

London, Ernest. A Comparative Study of the Achievement of Urban Eighth Grade Mathematics Students Using an Activity Oriented Mode of Instruction and a Conventional Textbook Mode. (Temple University, 1978.) DAI 39A: 2113; October 1978. [7817392]

No significant differences in attitude or achievement were found between activity and textbook modes, although results favored the activity mode. (grade 8)

Lorens, Kenneth Robert. An Investigation of the Correlations Between the Dependent Variable of Student Achievement on Standardized Tests and the Three Independent Variables of Teacher Experience, Amount of Graduate Work Completed and the National Teacher Examinations Grade. (University of South Carolina, 1977.) DAI 38A: 5166-5167; March 1978. [7801161] [teachers in grade 4]

Low, Brian Charles. Aspects of Operational Thinking in Elementary Mathematical Material Involving Measurement Tasks. (University of New South Wales (Australia), 1977.) DAI 38A: 5973-5974; April 1978. [—]

Patterns of achievement on the measurement tasks paralleled results obtained on number by Collis. (ages 10-17)

Lunan, Mackenzie Alexander. A Study of the Relationships Between Florida Statewide Twelfth Grade Test Scores and High School Subject Area Grades as Predictors of Academic Success in a Particular Community Junior College. (University of Southern Mississippi, 1977.) DAI 38A: 5828-5829; April 1978. [7802921] [community junior college]

Lyon, Betty Clayton. Selected Characteristics of Adult College Students in Relation to Mathematical Competencies. (The University of Nebraska-Lincoln, 1977.) DAI 38A: 7194; June 1978. [7809158]

Age, sex, and mathematical background were found to "reflect on" the mathematical competencies measured, with many adult students lacking the basic competencies in question. (college adults)

Malone, Diana F. A Study Regarding the Use of Mathematical Achievement Test Scores as Predictors of Success in First-Year Chemistry and the Effectiveness of a Chemical Mathematics Preparation Course Designed for Students Inadequately Prepared in Mathematics. (The University of Iowa, 1977.) DAI 38A: 4073; January 1978. [77-28,483] [college]

Marchegiani, Boris Vasir. Effects of Two Calculus Treatments upon Achievement and Critical Thinking Ability. (The University of Tennessee, 1977.) DAI 38B: 3233; January 1978. [77-27,680]

Null hypotheses pertaining to the effects of proof and non-proof treatments were neither accepted nor rejected. (college)

Marcy, Carmen Rickard. Effects of Variable Interval Schedules of Praise on Attending and Computation Proficiency of Third Graders. (University of Oregon, 1977.) DAI 38A: 6058; April 1978. [7802540]

More frequent schedules of praise increased attending behavior but did not produce differential effects on computation rate. (grade 3)

Martin, Mary Ellen Jacobson Fish. Describing Classification Skills of Sixth, Seventh, and Eighth Graders. (University of Illinois at Urbana-Champaign, 1978.) DAI 39A: 171; July 1978. [7811263]

The order of difficulty of six tasks was determined. (grades 6-8)

Mason, Gerald Eugene. An Analysis and Evaluation of the Credit-By-Examination Program in Mathematics at a Community College. (University of Miami, 1977.) DAI 38A: 4115; January 1978. [77-28,945]

Responses to a questionnaire and achievement information indicated that the program did not affect the education of participants adversely. (community college)

Matty, Edward Joseph. The 45-15 Year-Round School: An Evaluation of First-Year Algebra Achievement of Selected Ninth-Grade Students. (The University of Arizona, 1978.) DAI 39A: 834-835; August 1978. [7812918]

Significant differences in achievement favoring the standard-calendar schools were found, but no attitudinal differences resulted. (grade 9)

McAffee, John Wilson. Sex as an Indicator in the Mathematics Performance of Selected Seventh- and Eighth-Grade Students. (East Texas State University, 1977.) DAI 38A: 6521; May 1978. [7805469]

No significant differences between males and females were found on computation or reasoning tests except when grade levels were combined (and then females scored higher than males on computation). (grades 7, 8)

Mcanelly, James Robert. A Study of the Mathematical Competencies Considered Important by Supervisors in Large Retail Firms in the Metropolitan Area of Chicago. (Northern Illinois University, 1978.) DAI 39A: 3314-3315; December 1978. [7823110] [adults]

McBride, John Wynn. The Relationship Between Proportional Thinking and Achievement of Selected Science and Mathematics Concepts at the Knowledge, Comprehension, and Application Levels. (University of Houston, 1977.) DAI 38A: 7254; June 1978. [7809184]

Quantitative proportional reasoners achieved greater understanding of equivalent fraction concepts than qualitative proportional reasoners. (grade 9)

McCabe, Jean Shafer. Characteristics of Classroom Environments and Their Relationship to Cognitive Development. (The University of Connecticut, 1977.) DAI 38A: 6503-6504; May 1978. [7806133] [grades K-2]

McCallum, Lawrence Wayne. Response Latency as a Means of Assessing Conservation Behavior in Young Children. (The University of Iowa, 1978.) DAI 39B: 3026; December 1978. [7822428] [ages 5-10]

McDermott, Hazel Travillia. The Effect of a Reduction in Class Size on Achievement Among First and Second Grade Students. (Texas Woman's University, 1977.) DAI 38A: 5237; March 1978. [7801772]

No significant difference in achievement in mathematics was found when class size was reduced from 27 or more to 25 or less. (grades 1, 2)

McFarland, Gerald Lee. A Comparative Study of Academic Achievement of Students Moving from an Open Space or Architecturally Traditional Design Elementary Building to an Open Space or Architecturally Traditional Design Junior High School Building. (Saint Louis University, 1977.) DAI 38A: 5167; March 1978. [7800509] [grades 4-10]

Medusky, John William. An Analysis of the Ability of Selected Variables to Predict the Probability and Degree of Success in a Community College Intermediate Algebra Course. (Florida Atlantic University, 1978.) DAI 39A: 2015; October 1978. [7818627]

A set of five classification functions was able to predict 34.5 per cent of all course grades correctly, 65.4 per cent of all grades within one grade level, and 60.0 per cent of students who failed the course. (community college)

Meyerson, Lawrence Nils. Conception of Knowledge in Mathematics: Interaction with and Applications to a Teaching Methods Course. (State University of New York at Buffalo, 1977.) DAI 39A: 733-734; August 1978. [7814237]

Diagnosis and problem posing were key components in the developed methods course. (preservice)

Miller, Bertram Michael. The Effect of a Two-Way, Single Blind Feedback System upon Academic Secondary School Students' Attitudes Toward Mathematics. (University of Maryland, 1977.) DAI 38A: 5974; April 1978. [7804519]

No significant difference in ratings of teachers was found between groups given or not given written feedback. Student attitudes may be related to the attitudes of their present teachers. (secondary)

Miller, Lawrence C. The Development, Implementation, and Evaluation of a Self-Paced, Multi-Methodology, Prescription Mathematics Program for Technology Students. (University of Pittsburgh, 1977.) DAI 38A: 5311-5312; March 1978. [7801871]

The experimental program was judged effective. (community college)

Miller, Patrick William. The Effects of Selected Industrial Arts Activities on Educable Mentally Retarded Students' Achievement and Retention of Metric Linear Concepts. (The Ohio State University, 1977.) DAI 38A: 4627-4628; February 1978. [7731934] [junior high (EMRs)]

Moffett, Noah Wayne. A Cross Sectional Study of Piaget's Proposed Sequential Development of Distance Conservation and the Spatial Coordinate System. (The University of Alabama, 1977.) DAI 39A: 198; July 1978. [7809869] [ages 6-12]

Mohammad, Haji. The Development of an Affine Geometry Program for Secondary School Students. (Kent State University, 1977.) DAI 38A: 5974-5975; April 1978. [7802771]

A sample unit was developed and judged to be appropriate. (secondary)

Monteiro, Maria Therezinha de Lima. Programmed Instruction of the Decimal Number Concept with Variations of Stimulus Control and Reinforcement. (Georgia State University-School of Education, 1977.) DAI 38A: 6018-6019; April 1978. [7804215]

"Active manipulation of stimuli" was favored over "perception of stimuli manipulated by others" and "non-manipulation perception of prepared stimuli" (for Brazilian students). (grade 3)

Montgomery, Leo. Number Concept Development in Black Children from High, Middle, and Low Socio-Economic Status Backgrounds. (University of California, Irvine, 1978.) DAI 39B: 1460-1461; September 1978. [7815329]

Significant differences in performance favored high and middle SES groups over low SES groups, and boys over girls. Frequent explanations for number tasks were noted. (grades 1-3)

Morales, Juan M. The Effects of a Controlled Curriculum upon On-Task Behavior, Mathematics Achievement, and School Interest of Low Achievers. (The University of Tennessee, 1977.) DAI 38A: 7121; June 1978. [7807708]

The rate of on-task behavior was higher when instruction was given at an appropriate level with knowledge of results. (grade 9)

Moretti, Victor A. Piagetian Cognitive Level and Its Relationship to Sex, Aptitude and Achievement, and Exposure to High School Subject Matter Disciplines. (Rutgers University The State University of New Jersey (New Brunswick), 1977.) DAI 38A: 6669-6670; May 1978. [7804599] [post-secondary]

Morgan, Michael Ernest. The Influence of Vocationally-Oriented Applications on the Achievement and Attitude of Community College Algebra Students. (Oregon State University, 1978.) DAI 39A: 2802; November 1978. [7819710]

No significant achievement or attitude differences were found between students using vocationally oriented applications or the usual text. (community college)

Moroz, Susan Wachter. Mathematical Problem Solving Ability in Learning Disabled Children as a Function of Memory Capacity and Memory Organization. (Rutgers University The State University of New Jersey (New Brunswick), 1978.) DAI 39A: 2871; November 1978. [7820336]

Memory capacity and organization were found to be important variables in problem solving for learning disabled children. (ages 7-10)

Moses, Barbara Elaine. The Nature of Spatial Ability and Its Relationship to Mathematical Problem Solving. (Indiana University, 1977.) DAI 38A: 4640; February 1978. [7730309]

Spatial ability correlated significantly with problem-solving performance and, to a lesser extent, with visuality. Instruction had a strong, positive effect on spatial ability. (grade 5)

Mueller, JoAnne. The Effects of Remedial Prescriptions and of Grade Expectation on Academic Achievement Within a Given Learning Strategy. (The University of Iowa, 1977.) DAI 38A: 4005; January 1978. [77-28,497]

No significant difference in achievement was found between grading treatment groups or between prescription and no prescription groups. (elementary preservice)

Murry, Michael Dennis. The Relationship of Classroom Behavior to Academic Achievement and Aptitude. (The University of Tennessee, 1977.) DAI 38A: 7156; June 1978. [7807711]

Strong relationships were found between behavior in arithmetic classes and arithmetic achievement and aptitude. Differences between achievement groups were noted. (grade 5)

Nelson, William Thomas. A Study of Competency Based Education with Proposed Guidelines for Use by Local Schools. (University of Wyoming, 1978.) DAI 39A: 1970; October 1978. [7818941] [grades K-12]

Nicholson, Joseph Francis. A Study of Achievement, Attitude and Self-Reliance in a Conventional and Integrated Day Classroom. (Boston College, 1977.) DAI 38A: 6522; May 1978. [7729218] [grade 5]

Nielsen, Sally Hemphill. Effects of Parent Consultation Seminar Sessions on Academic Achievement of Kindergarten Children. (University of New Orleans, 1977.) DAI 38A: 6608; May 1978. [7802878] [grade K]

Nolan, William F. Teachers' Attitudes as Mediators of Students' Attitudes and Achievement. (Boston University School of Education, 1977.) DAI 38A: 5362-5363; March 1978. [7732779]

Neither teachers' attitudes toward mathematics nor their attitudes toward teaching mathematics "met the criteria for construct viability". (elementary teachers)

Nowlan, Helen Ruth Chatburn. Successful Completion of a Developmental Mathematics Course at an Open Door Institution as a Criterion for Success in a College Level Mathematics Course. (The University of Mississippi, 1978.) DAI 39A: 3432-3433; December 1978. [7824058]

Although a significant difference was found among groups, it was not sufficient for success. (college freshmen)

Nyire, Margaret Ann. Teaching Problem Solving Through Formal Operations and Role Taking. (Fordham University, 1977.) DAI 38A: 3916-3917; January 1978. [77-28,089] [secondary]

Ohe, Sister Jong-Son Pia. Learning Aptitudes: Some Ethnic-Group Differentials in Learning Piaget's Spatial Tasks. (The Catholic University of America, 1977.) DAI 38A: 4693-4694; February 1978. [7727787] [ages 5, 6]

Oliyaee-Zand, Shahin. The Effects of Differential Feedback on Expected and Actual Mathematical Achievement of Male and Female College Freshmen. (The University of North Dakota, 1977.) DAI 38B: 5545; May 1978. [7805416]

A high positive relationship was observed between expectation of and actual mathematics achievement of both males and females, although women scored significantly lower than men on both measures. However, significant increases in expected and actual mathematical achievement of males and females were observed when they were given false positive feedback. (college)

Olson, Charles Andrew. The Effects on Attitude and Achievement of an Eclectic Approach to High School Geometry. (University of Washington, 1977.) DAI 39A: 1301; September 1978. [7814480]

Differences favored the group taught by an eclectic approach over the group taught by a deductive approach. (grade 10)

O'Mahony, Rosalie Mary. Relationship of Trigonometry Achievement to Selected Characteristics of California Public Community College Students. (University of Southern California, 1977.) DAI 38A: 5872; April 1978. [--]

Instruction based upon the wrapping function was judged to be the most effective content approach, with a combination college algebra and trigonometry course recommended over a trigonometry-only course. (community college)

Onyejuruwa, Dickson Okereke. Infusing Career Education Concepts into the Training of Subject Matter Teachers in the Imo State of Nigeria. (Columbia University Teachers College, 1978.) DAI 39A: 2759; November 1978. [7821829] [secondary in-service]

Ortiz, Franco, Luis. A Selected Study on Mathematical Word Problem Solving Processes. (Stanford University, 1977.) DAI 38A: 5312; March 1978. [7802211]

"A non-significant correlation" was found between reading and mathematical problem solving for Chicano students with either Spanish or English language predominance. Processes were also studied. (mean age 14)

Owens, Barbara Boucher. An Interaction Study of Reasoning Aptitudes Model Presence and Methods of Approach in the Learning of a Computer Programming Language. (New York University, 1977.) DAI 38A: 7122; June 1978. [7808480] [college]

Pasquino, Anne Dolores. An Assessment of the Ability of Junior High School Students to Create Mathematical Models Using Computer-Related Curriculum Materials. (University of Massachusetts, 1978.) DAI 39A: 2113-2114; October 1978. [7818034]

A positive correlation was found between ability to reason abstractly and to construct mathematical models. The curriculum materials did not affect reasoning ability, but were "generally effective" in teaching modeling skills and concepts. (grade 7)

Patterson, James Grey. Order of Emergence of Number Conservation, Seriation and Transitivity of Length, Using the Criteria of Judgments, Verbal Countersuggestions, and Explanations. (The University of Nebraska-Lincoln, 1977.) DAI 38A: 7236-7237; June 1978. [7808171] [ages 4-8]

Peiffer, William John. The Effect of Item Arrangement on Test Statistics from Different Ability Groups. (Rutgers University The State University of New Jersey (New Brunswick), 1978.) DAI 39A: 246-247; July 1978. [7810233]

Item arrangement (on an easy-to-difficult continuum) had little effect on test statistics for a mathematics skills test. (grade 9)

Perkins, Raymond David. The Relationship of Certain Mathematics Skills to Success of Students in Introductory Community College Chemistry. (Oregon State University, 1978.) DAI 39A: 798; August 1978. [7811992] [college]

Peterson, Richard V. A Study of the Relationship Between Selected Personal Variables and the Academic Achievement of Black Students at Purdue University. (Purdue University, 1977.) DAI 39A: 591; August 1978. [7813101] [college]

Pinchback, Carolyn Louise. Relating Symbolism to Mathematical Concepts by 10-11 Year Olds. (The University of Texas at Austin, 1978.) DAI 39A: 2052-2053; October 1978. [7817693]

No evidence was found that the time of introduction of symbolism affected the attainment of probability concepts. (grade 5)

Posner, Jill Kennedy. The Development of Mathematical Knowledge Among Baoule and Dioula Children in Ivory Coast. (Cornell University, 1978.) DAI 39A: 201-202; July 1978. [7809837]

Ways in which two groups of children performed number tasks were analyzed; one consistent finding was the "superior" performance of schooled compared to unschooled children. (ages 5-10)

Pribnow, Jack Rexford. Interaction and Main Treatment Effects of a Hybrid Individualized and a Traditional Secondary Geometry Program on Achievement and Attitude. (University of Southern California, 1978.) DAI 39A: 2730; November 1978. [—]

A significant difference in achievement was found favoring students having the individualized program. (grade 10)

Price, David Aldwyn. The Effects of Individually Guided Education (IGE) Processes on Achievement and Attitudes of Elementary School Students. (University of Missouri-Columbia, 1977.) DAI 38A: 4555-4556; February 1978. [7731757] [grades 4-6]

Price, Sharon Gail. Effects of Selected Early Childhood Programs in Missouri on Certain Cognitive Kindergarten Achievement Outcomes. (University of Missouri-Columbia, 1977.) DAI 38A: 4668; February 1978. [7731758] [grade K]

Purakam, Orasri. Effects of Curricular Change on Mathematical Abilities and Attitudes of Secondary Students in Thailand. (University of Maryland, 1977.) DAI 38A: 5312-5313; March 1978. [7800384] [secondary]

Quinn, D. William. The Causal Relationship Between Mathematics Achievement and Attitude in Grades 3 to 6: A Cross-Lagged Panel Analysis. (Western Michigan University, 1978.) DAI 39A: 3433; December 1978. [7823371]

Some significant correlations between attitude and achievement were found. (grades 3-6)

Racette, Rene Joseph. The Relationship Between Scores on the General Educational Development Test and Selected Individual Variables Influencing Learning. (The University of Connecticut, 1978.) DAI 39A: 612-613; August 1978. [7813859] [adults]

Radeloff, Deanna Jean Bolfa. Correlations of Creativity, Achievement, and Parental Variables of Early School Entrance Children. (The University of Michigan, 1978.) DAI 39A: 659; August 1978. [7813723] [elementary]

Rakpraja, Ladda (Chookiat). Perception of Needs of Secondary School Mathematics Teachers in Thailand Relating to In-Service Education. (University of Northern Colorado, 1978.) DAI 39A: 99-100; July 1978. [7810548] [secondary in-service]

Rancifer, Jesse Lee. An Investigation of Attitudes Toward Mathematics Determining the Election or Non-Election of College Preparatory Mathematics by Secondary Black and White Students. (Kansas State University, 1978.) DAI 39A: 2802; November 1978. [7821882]

College preparatory students were favored over non-college preparatory students on attitude measures; sex and race were also considered. (grade 12)

Randle, Kenneth Lewis. Differential Gain in Academic Achievement and Behavioral Adjustment of Children with Learning Disabilities Among Three Administrative Arrangements: Implications for the Evaluation of Pupil Progress. (University of Illinois at Urbana-Champaign, 1978.) DAI 39A: 2669; November 1978. [7821227] [ages 6-12]

Ray, Kenneth Larry. The Effects of Computer-Assisted Test Construction on Achievement in First-Year Algebra. (University of Southern California, 1977.) DAI 38A: 4758-4759; February 1978. [—]

Students using the computer-assisted test with repeatable testing achieved higher than students taking a "traditional" course. (grade 9)

Reed, Richard Bolton. The Relationship Between the Level of Cognitive Development and Success in First-Year Algebra. (University of Southern California, 1978.) DAI 38A: 7259-7260; June 1978. [—]

A significant but low relationship was found between scores on a logical thinking test and success in algebra. (grades 8, 9)

Richbart, Lynn Alan. An Investigation and Comparison of the Relationships Generated Among Mathematical Topics by Students from Two Grade 9-11 Mathematics Programs. (State University of New York at Albany, 1978.) DAI 39A: 3336-3337; December 1978. [7823133]

Low-aptitude students were more dependent on the topics formally taught than were high-aptitude students. Hierarchies were also analyzed. (grades 9-11)

Riddle, Douglas Franklin. Elementary Management Decision Mathematics for Pre-Calculus Students. (Carnegie-Mellon University, 1978.) DAI 39B: 1805; October 1978. [7815189] [college]

Robinson, Evelyn Barron. The Effects of a Concrete Manipulative on Attitude Toward Mathematics and Levels of Achievement and Retention of a Mathematical Concept Among Elementary Students. (East Texas State University, 1978.) DAI 39B: 1335; September 1978. [7816623]

Use of Cuisenaire rods was found to be effective for introducing concepts in grade 3; the more rods were used, the greater was retention. (grades 3, 4)

Roecks, Alan Lewis. Attaining Equality of Educational Opportunity Based on Amount of Schooling for Students of Differing Aptitude. (The University of Wisconsin-Madison, 1977.) DAI 38A: 3945; January 1978. [77-19,727]

Low-aptitude students were about one and one-half times as expensive to educate than were high-aptitude students in a mathematics setting. (grade 5)

Rogerson, Lannie Crocker. The Relationship Between Academic Self-Concept, Locus of Control and Achievement Expectancy in Mathematics. (University of South Carolina, 1978.) DAI 39A: 1407-1408; September 1978. [7816524]

A correlation of 0.33 was found between academic self-concept and mathematics report grade expectancy; locus of control had only a slight relationship. (grades 5, 6)

Romine, William Darvel. Individualized Instruction: A Comparison of Achievement Between Students in U-SAIL and in Traditional Programs. (Brigham Young University, 1978.) DAI 39A: 593; August 1978. [7813805]

No significant achievement differences in reading or arithmetic were found between the two groups. (elementary)

Rosenberger, Naomi. A Study of Directed Instruction, Self-Instruction, and No Instruction in Creative Teaching and Problem Solving and Their Effect upon the Behavior of Preservice Elementary Teachers During Student Teaching in Mathematics. (University of Colorado at Boulder, 1978.) DAI 39A: 2842; November 1978. [—]

Instruction in divergent thinking procedures resulted in significantly different creativity test scores than no such instruction, but no significant difference in student teaching performance. (elementary preservice)

Ruda, Fredrick P. Metric Implementation: The Attitudes and Feelings of Kansas Secondary Industrial Arts Instructors. (University of Northern Colorado, 1977.) DAI 38A: 4628-4629; February 1978. [7730865] [secondary in-service]

Safran, Marsha. Locus of Control, Task Perception, Source of Reinforcement and Their Effects on Achievement of Fifth-Grade Students. (Fordham University, 1978.) DAI 38A: 7239; June 1978. [7809013] [grade 5]

Salviani, Candida. A Comparison of the Acquisition of Piagetian Conservation Concepts and the Attainment of Mathematical Skills by Bilingually Educated Bilingual Second Grade Children and Monolingually Educated Bilingual Second Grade Children. (New York University, 1978.) DAI 39A: 2156-2157; October 1978. [7818157]

A positive correlation was found between attainment of conservation concepts and mathematics achievement test scores. (grade 2)

Sangviriyakul, Valapa Piroonraksa. A Comparative Study of Selected Elementary School Mathematics Textbooks Used in the United States and in Thailand. (University of Northern Colorado, 1978.) DAI 39A: 2114; October 1978. [7819027]

Differences in U.S. and Thai textbooks were noted for 11 topics. (grades 1-4)

Sanjivamurthy, Pasupaleti Thimmaiah. Test Anticipation, Test Mode and Performance in a College Algebra Class. (Case Western Reserve University, 1978.) DAI 39A: 1445; September 1978. [7816488]

Results "appear to suggest" that processing requirements for a recall-mode test are appropriate or adequate for a recognition-mode test, but not conversely. (college)

Savage, Sandra Skeen. Selected Topics in Applied Mathematics for Middle Grade Mathematics Classes - An Exploratory Study. (Columbia University Teachers College, 1977.) DAI 38A: 6586-6587; May 1978. [7807036]

Trial use of three applied mathematics teaching units indicated no significant change in achievements. Students preferred working in small groups rather than individually or as a whole class. (grade 8)

Schenck, William Edward. Arithmetical Problem Solving and Recognition Memory for Sentences Among EMR Children. (The University of Connecticut, 1978.) DAI 38A: 6653-6654; May 1978. [7806148]

A difference in the recognition performance of good and poor problem solvers was found. (elementary EMRs)

Schiesler, Mary Antoinette. Locus of Control and Academic Achievement in Remedial Chemistry. (University of Maryland, 1977.) DAI 38A: 4077-4078; January 1978. [77-28,005] [college]

Schmidt, Philip A. Understanding in Mathematics: Some Philosophical and Psychological Considerations. (Syracuse University, 1977.) DAI 39A: 734; August 1978. [7811679]

Definitions of "understanding" are discussed, with examples from secondary school mathematics. (secondary)

Schultz, Karen Andrea. Variables Influencing the Difficulty of Rigid Transformations During the Transition Between the Concrete and Formal Operational Stages of Cognitive Development. (Northwestern University, 1977.) DAI 38A: 5313; March 1978. [7800750]

Attributes of transformations in geometry were analyzed, with discussion of the causes of disequilibrium. (ages 6-10)

Schwartz, Ronald Christian. Attitudes and Understandings of the International (SI) Metric System by Prospective Elementary Teachers. (Indiana University of Pennsylvania, 1975.) DAI 38A: 5407-5408; March 1978. [7720945]

No significant differences in knowledge or attitudes were found; background, sex, and other factors were considered. (elementary preservice)

Scott, Wayne Richard. The Effect of Providing Item Analysis Data on Mathematics Achievement of Pupils and Instructional Practices of Teachers in Grade Six. (The University of Michigan, 1978.) DAI 39A: 3433-3434; December 1978. [7823005]

It was concluded that when item-analyzed test results are returned to teachers, correlation to text material has a positive effect on achievement. Meeting with teachers only at the time test results are returned does not significantly affect achievement. (grade 6)

Scrofani, Emanuel John. Academic Achievement and Student Attitudes in Selected California Early Childhood Education Schools. (University of Northern Colorado, 1977.) DAI 38A: 6516-6517; May 1978. [7805522] [grades 2, 3]

Sears, Lawrence David. A Problem of the Effects of Teaching a Course in Algebra II and Trigonometry Via the Traditional Method, the Colorado Schools Computing Science Materials Method and the Altrig Computer-Based Teaching System Method. (University of Houston, 1977.) DAI 38A: 7125-7126; June 1978. [7809177]

No significant differences in achievement were found between the three methods. Changes in attitude and achievement for each group were noted. (grades 10-12)

Seifnaraghi, Mariam. Conservation of Liquid, Mass, and Weight with Learning-Disabled Children. (University of Southern California, 1977.) DAI 38A: 4101; January 1978. [—] [ages 6-12]

Semmes, Patricia Anne. A Preliminary Investigation of Two Presentation Modes on Dynamic Problems in Algebra in Relation to Individual Differences. (The University of Texas at Austin, 1977.) DAI 38A: 4005-4006; January 1978. [77-29,095]

Motion picture presentation was found to be superior to still picture presentation of problems. Spatial visualization and general reasoning were also considered. (grade 9)

Shapiro, Stanley Jay. A Multimedia Project for the Independent Instruction of Allied Health Students in the Application of Mathematical Skills to Science Problems in Their Curricula. (New York University, 1978.) DAI 39A: 3497-3498; December 1978. [7824115] [community college]

Shrestha, Madan Man. An Evaluative Study of the Ongoing Mathematics Program for Prospective Primary School Teachers in Nepal. (The Pennsylvania State University, 1977.) DAI 38A: 7194-7195; June 1978. [7808425] [elementary preservice]

Silver, Edward A. Student Perceptions of Relatedness Among Mathematical Word Problems. (Columbia University Teachers College, 1977.) DAI 39A: 734-735; August 1978. [7812015]

Students generally associated problems along four dimensions—structure, context, question form, and pseudostructure. Correlations of ability and sorting tendency were also studied. (grade 8)

Silverman, Frederick Lee. Distinguishing Concrete and Formal Operational Thinking in Terms of Logical Reasoning Ability, Attitude Toward Mathematics, and G.P.A. in Preservice Teachers. (University of Houston, 1978.) DAI 39A: 2114-2115; October 1978. [7818223]

A set of variables distinguishing between concrete and formal thinkers was ascertained. Formal operational thinkers tended to prefer a consistent mathematical system. (elementary and secondary preservice)

Simmons, S. Dallas. A Study of Selected Characteristics of Minority and Majority Students Attending Predominantly White and Predominantly Black Universities. (Duke University, 1977.) DAI 38A: 4497-4498; February 1978. [7731692] [college]

Smith, Buddy Lee. A Study of the Effectiveness of the Use of the Electronic Calculators in Teaching the Simplex Method to Business and Economics Majors. (North Texas State University, 1977.) DAI 38A: 3986; January 1978. [77-29,574]

Regardless of sex or mathematics aptitude level, little difference in mathematics achievement or attitude was observed between students using or not using calculators in the classroom. (college)

Smith, Charles David. Formative Evaluation and Achievement in Large Statistics Classes at the College Level. (The University of Connecticut, 1977.) DAI 38A: 4640-4641; February 1978. [7731222]

A formative evaluation program was judged to have a positive effect on achievement, despite lack of significant differences. (college)

Smith, Horace Greeley. The Effects of Various Audiotutorial Review Techniques on the Retention of Mastery-Level Skills. (Wayne State University, 1977.) DAI 38A: 4118-4119; January 1978. [77-24,018]

The study-guide review group and the edited audiotape review group had significantly better retention than the non-review group and the compressed-speech review group. (community college)

Smith, Jamie C. Relationships Among Figural Creativity, Concrete Operational Logic, and School Achievement in Young School-Age Children. (University of Georgia, 1977.) DAI 38A: 4700-4701; February 1978. [7730525] [ages 5-8]

Smith, Mildred Free. Comparison of the Reading and Arithmetic Progress of Mainstreamed, Decertified Educable Mentally Retarded Students with Slow Learners Within the Same Classrooms. (University of Maryland, 1978.) DAI 39A: 3338-3339; December 1978. [7824027] [grades 2-6 (EMRs)]

Smith, Richard Lawrence. Figure Types and Problem-Solving Achievement in Computational Activities. (The Ohio State University, 1978.) DAI 39A: 2706; November 1978. [7819666] [post-secondary]

Smith, William Harold. The Readability of Geometry and Algebra/Trigonometry Textbooks as It Relates to Scholastic Aptitude, Sex, and Book Position. (University of Southern California, 1977.) DAI 38A: 4558-4559; February 1978. [--]

Textbooks were found to be readable, and revised passages were equally readable. (secondary)

Spresser, Diane Mar. The Relationship Between High School Calculus and Achievement in Engineering/Applied Science for First Year Engineering Students at the University of Virginia. (University of Virginia, 1977.) DAI 38B: 3285-3286; January 1978. [77-28,592]

When mathematical aptitude was taken into account, all between-treatment differences in university calculus achievement "disappeared". (college)

Springer, Stephen Alan. A Study of the Performance of Deaf and Hearing Subjects on Piagetian and Neo-Piagetian Tasks. (York University (Canada), 1977.) DAI 38B: 5618; May 1978. [--] [ages 6-12]

Staszkiewicz, Mark John. The Effect of Learner's Cognitive Style and Classroom Climate on Student Achievement and Attitudes in First-Year Algebra. (University of Cincinnati, 1977.) DAI 39A: 653-654; August 1978. [7812962]

No significant differences in attitudes were found for either cognitive style or classroom climate, but differences in achievement were found favoring field independent students and indirect students. (grade 9)

Stein, Paul Carver. Elementary Properties and Applications of the Fibonacci Sequence. (Oklahoma State University, 1977.) DAI 38A: 5229; March 1978. [7801342]

It was concluded that the materials presented in the dissertation could be used as enrichment with secondary and college students. (secondary, college)

Stewart, Joy Miller. An Analysis of Academic Achievement of High Ability Pupils in Two Instructional Situations and Their Stated Feelings About School. (The University of Alabama, 1977.) DAI 39A: 2055; October 1978. [7818902] [grades 5-8]

Stewart, Ward Robert. The Passage of Upward Bound Students into Postsecondary Education. (University of Maryland, 1977.) DAI 39A: 735; August 1978. [7813878] [college]

Stiff, Lee Vernon. The Effects of Pure C and E Strategies, Number of Moves, and Relevant Knowledge on Learning a Contrived Algebraic Concept. (North Carolina State University at Raleigh, 1978.) DAI 39A: 2803; November 1978. [7820065]

As the amount of relevant knowledge increased, so did test performance. Interaction of relevant knowledge with type of pure teaching strategy used in a concept venture was significant. (grades 11, 12)

Stones, Ivan Dean. A Study of Attitudes Toward Mathematics, Level of Mathematical Competency, and Relative Gains in Competency of College Students Enrolled in Selected Mathematics Courses. (The University of Nebraska-Lincoln, 1977.) DAI 38A: 7195; June 1978. [7809166]

Among the nine findings reported, it was noted that a mean gain of 1.48 (items correct) was observed from pretest (mean of 35.70) to posttest (mean of 37.18) on the 48-item criterion measure of mathematical competencies. (college, community college)

Straham, Clarence Clifford. Factors That Contribute to Senior Students Electing Not to Complete a Mathematics Course Sequence. (The University of Michigan, 1978.) DAI 39A: 735-736; August 1978. [7813742]

Subjects evidenced little or no fear of enrollment in a mathematics course, or little, if any, negative attitude toward mathematics; their educational opinions and decisions were not strongly influenced by any particular group, condition, policy, person, or need. (grade 12)

Stuart, Hayes Laverne. A Study of Factors Related to the Mathematics Achievement of Eighth-Grade Students in the Public Schools of St. Tammany Parish, Louisiana. (University of Southern Mississippi, 1978.) DAI 39A: 2115; October 1978. [7818986]

The best single predictor of achievement was the student's general self-concept of ability; other factors were also noted. (grade 8)

Swan, Kenneth Laverne. Comparison of Achievement Test Scores in Grade Four. (Saint Louis University, 1978.) DAI 39A: 1499; September 1978. [7814644] [grade 4]

Swatsenbarg, Paul Arnold. Validation of a Program for Increasing Study Skills and an Analysis of Its Effect on Conduct and Arithmetic Achievement. (Utah State University, 1977.) DAI 38A: 7275-7276; June 1978. [7808141]

Significant differences were found favoring use of the skills program. (grade 6)

Szijj, Maria Haftkowycz. On the Graphic Representation of Musical Sound. (Rutgers University The State University of New Jersey (New Brunswick), 1978.) DAI 39A: 2803; November 1978. [7820348] [—]

Szykula, Steven A. Self-Control, Maintenance and Generalization: Some Effects on "High" and "Low Risk" Children's Arithmetic Performance. (The University of Tennessee, 1977.) DAI 38A: 5370; March 1978. [7802041]

The performances of two pupils were analyzed in terms of a self-control method. (grade 5)

Tanguma, Ramon Hector. Bilingual Education: The Effects of Selected Variables on the Achievement in Selected School Subject Areas of Mexican American Fifth- and Sixth-Grade Students. (The University of Texas at Austin, 1977.) DAI 38A: 3872; January 1978. [77-29,106] [grades 5, 6]

Tapp, Brenda Cockrill. The Effect of an Individualized Mathematics Laboratory Approach on the Self-Concept and Achievement of Low Achievers in a Semi-Rural Junior High School. (Georgia State University-School of Education, 1977.) DAI 38A: 6512; May 1978. [7804945]

The laboratory approach resulted in a significant gain in self-concept in mathematics; no other significant differences were found. (grades 7-8)

Tate, Jerry Franklin. The Relative Effectiveness with Respect to Knowledge and Attitude of Three Instructional Strategies for Teaching the Metric System to Preservice Elementary School Teachers. (University of Houston, 1977.) DAI 38A: 7195-7196; June 1978. [7809173]

The lecture/demonstration, lecture/laboratory, and mediated strategies were equally effective for teaching the metric system for one week. (elementary preservice)

Taylor, Charles Owen. Proportional Variations of Cognitive and Psychomotor Reinforcement in Metric Education. (Temple University, 1978.) DAI 39A: 655; August 1978. [7812300] [grade 8]

Taylor, Clive Ronald. Mathematics from Several Nominalistic Points of View. (University of California, Berkeley, 1977.) DAI 38A: 4889-4890; February 1978. [7731562]

Several answers to the question "What is mathematics?" are compared. (—)

Thomas, Ossie Mae Banks. Direct Instruction on Three Reading Variables Related to Verbal Arithmetic Problem Solving of Educable Mentally Retarded Pupils. (Georgia State University-College of Education, 1978.) DAI 39A: 229; July 1978. [7810766]

EMR pupils who had direct instruction on word identification and reading comprehension became more proficient in solving problems. (elementary, EMRs)

Thomas, Paul Douglas. A Comparison of Three Methods of Teaching Multiplication in Nondecimal Numerations to Community College Students. (East Texas State University, 1978.) DAI 39A: 3434; December 1978. [7824152]

Use of formulas was superior to rote memorization and to use of flow charts. (community college)

Thoms, Janice Louise. Conservation: More or Less. (University of Kansas, 1977.) DAI 38A: 4103; January 1978. [77-28,918] [ages 3-6]

Thrash, Susan Kaye. A Model for Criterion-Referenced Measurement and a Comparison of Item Analysis Procedures. (Michigan State University, 1977.) DAI 39A: 247; July 1978. [7810123] [elementary ?]

Tilson, Thomas DeWitt. Teaching First-Grade Mathematics by Radio: Observations in Six Nicaraguan Classrooms. (Stanford University, 1978.) DAI 39A: 3434-3435; December 1978. [7822584] [grade 1]

Tokuno, Kenneth Alan. The Young Child's Use of Topological Relationships in Making Judgements About Spatial Orientation. (University of Hawaii, 1977.) DAI 39B: 365; July 1978. [—] [ages 4, 6, 8]

Travis, Betty Polly. The Diagnosis and Remediation of Learning Difficulties of Community College Developmental Mathematics Students Using Computer Technology. (The University of Texas at Austin, 1978.) DAI 39A: 2115; October 1978. [7817722]

The diagnostic and remediation plan was found to be efficacious for identifying and correcting student errors with multiplication. (community college)

Trepanier, Mary Loretta. The Performance of Learning Disabled and Normal Children on Piagetian Memory Tasks. (The University of Rochester, 1978.) DAI 39A: 2847-2848; November 1978. [7820419] [ages 7-10]

Turner, Philip Michael. A Comparison of the Effectiveness of Two Types of Presentations in Teaching Fractions to Low-Ability Junior High School Students. (East Texas State University, 1977.) DAI 38A: 6480; May 1978. [7805474]

No significant differences (except in one instance) were found between groups using manipulatives or pictures. (junior high)

Ulrich, Robert Charles. The Effect of Combinatorial Rule-Discovery Activities and Social Interaction on Formal Logical Thinking of Pre-Adolescents. (University of Washington, 1977.) DAI 39A: 1397; September 1978. [7814506] [grade 6]

Vincent, Albert Thomas. The Effects of Supplementary Computer Assisted Instruction on the Mathematics Achievement and Attitude Toward Mathematics of EMR High School Students. (University of Cincinnati, 1977.) DAI 39A: 736; August 1978. [7812963]

Students using the CAI drill-and-practice program had significantly better achievement and attitudes than those not using CAI. (grades 9-12, EMRs)

Wagner, Sigrid. Conservation of Equation, Conservation of Function, and Their Relationship to Formal Operational Thinking. (New York University, 1977.) DAI 38A: 5975; April 1978. [7803038]

Significantly more students conserved equation but not function than conversely. Attributes of formal operational students were also noted. (ages 12, 14, 17)

Walker, Karen Edwards. Children's Perception of Geometric Invariants. (Vanderbilt University, 1977.) DAI 38B: 3938-3939; February 1978. [7730380]

Children were found to be "very sensitive" to Euclidian invariants, but "less sensitive" to projective and topological invariants. (grades K, 3)

Watkins, Ann Esther. The Effect of the Symbols and Structures of Mathematical English on the Reading Comprehension of College Students. (University of California, Los Angeles, 1977.) DAI 38A: 5975-5976; April 1978. [7802612]

Performance on application problems was not affected significantly by the form in which background conceptual material was written (ordinary vs. mathematical English, with or without symbols). (college)

Weaver, Earl Hagood. A Descriptive Evaluation of a Special Mathematics Program for Low-Achieving Seventh and Eighth Grade Students. (Auburn University, 1978.) DAI 39A: 1397; September 1978. [7815864]

Approximately one-half of the students had two year or greater gains in all score categories during the two years of the study. Cost of the special program was $110 compared with $55 for the regular program. (grades 7, 8)

Webb, Nancy Ann Lyons. Freshman Achievement at Louisiana State University at Eunice in Terms of Certain Factors. (The Louisiana State University and Agricultural and Mechanical College, 1978.) DAI 39A: 1353-1354; September 1978. [7815644] [college]

Webb, Noreen Marie. Learning in Individual and Small Group Settings. (Stanford University, 1978.) DAI 38A: 7248-7249; June 1978. [7808863]

The order of best-to-worst grouping conditions for lower-ability students was mixed-ability, individual, and uniform-ability; high-ability students performed less well in uniform-ability groups, while the order was reversed for median-ability students. (grade 11)

Webber, Brian John. A Study of the Retention by First Year College Students of Selected Rules of Proportion in Physics Which Differ in Mathematical Complexity and Are Learned Using Programmed Instruction Either With or Without Laboratory Experiences. (The Florida State University, 1978.) DAI 39A: 3343; December 1978. [7822213] [college freshmen]

Weber, Clifford Paul. An Analysis of Teachers' Perceived Barriers to Metric Change in Relation to Their Readiness to Change. (Michigan State University, 1977.) DAI 39A: 243; July 1978. [7810132]

Teachers who are more ready to change perceived fewer barriers to metric change. Age, sex, training, and experience had no relationship to number of perceived barriers. (teachers in grades K-5)

Webster, Russell James. The Effects of Emphasizing Composition and Decomposition of Various Types of Composite Functions on the Attainment of Chain Rule Application Skills in Calculus. (The Florida State University, 1978.) DAI 39A: 3435; December 1978. [7822211]

Students presented with all types of functions throughout the instruction did better than those presented with predominantly one type. (college)

Weeks, Cecil Stoney. Long Term Differences in Achievement Associated with Extended Participation of Educationally Disadvantaged Children in a Structured Primary Program. (Mississippi State University, 1977.) DAI 38A: 3939-3940; January 1978. [77-28,568] [grades 3-6]

Weiland, Linnea Jo Anne. A Description of How Selected Seven Year Old Children Learn to Reason to Solve Partitive Division Problems. (New York University, 1977.) DAI 38A: 5976; April 1978. [7803041]

Seventeen distinct strategies were identified through interviews as children solved division problems. Difficulties and arguments used were also identified. (age 7)

Werstlein, Robert Charles. Effects of Type and History of Reinforcement on Magnitude of Vicarious Reinforcement. (Auburn University, 1978.) DAI 39B: 2532; November 1978. [7821542] [grade 2]

Wesney, Joseph Charles. An Analysis of the Influence of Prior Cognitive Development in Physics and in Mathematical Reasoning on Concept Attainment in the Study of Mechanics in Introductory College Physics. (Cornell University, 1977.) DAI 38A: 5379-5380; March 1978. [7802071] [college]

White, Carol Mick. An Evaluation of Three Instructional Strategies Using Diagnostic Tests and Audio-Taped Study Instruction in an Individualized Remedial Mathematics Program for College Students. (University of Minnesota, 1978.) DAI 39A: 3412-3413; December 1978. [7823972]

Differences between arithmetic and algebra students using quizzes before or after instruction, or using audiotape lessons, were analyzed. (college)

Wiesner, David Stewart. Cognitive Styles of Information Processing as Related to Academic Achievement of Third Grade Pupils. (The University of Rochester, 1978.) DAI 39A: 2734-2735; November 1978. [7820420] [grade 3]

Williams, Luther Francis. A Study of the Introductory Mathematical Analysis Sequence in the Business Administration Degree Program at Cleveland State Community College. (The University of Tennessee, 1978.) DAI 39A: 1309; September 1978. [7815032] [community college]

Wilson, Art Wendell. The Effects of the Hand-Held Calculator upon Achievement Test Scores of Elementary School Mathematics Students. (University of Montana, 1978.) DAI 39A: 2116; October 1978. [7819154]

No significant differences were found between groups using or not using calculators. (grades 5-6)

Woodward, Linda Rae White. The Relationships Between Children's Ability to Conserve Substance and Number and Their Ability to Solve Addition and Subtraction Problems for Missing Place-Holders. (North Texas State University, 1977.) DAI 38A: 4006; January 1978. [77-29,579]

Significant relationships were found between conservation of number and missing-placeholder scores. (grade 1)

Wyatt, William George. The Effects of a Simulation Career Game on the Achievement Motivation of Vocational Students Enrolled in Developmental Arithmetic. (Virginia Polytechnic Institute and State University, 1978.) DAI 39A: 2218-2219; October 1978. [7817239]

Neither game participation nor perceived instrumentality level (high/low) nor achievement motive orientation (success/avoidant) had an effect upon course achievement. (community college)

Yang, Chi-Yuan. The Predictive Validity of the Scholastic Aptitude Test for Chinese College Students. (Columbia University Teachers College, 1978.) DAI 39A: 3538; December 1978. [7822103] [college]

Zalewski, Claire Jean. An Investigation of Selected Factors Contributing to Success in Solving Mathematical Word Problems. (Boston University School of Education, 1978.) DAI 39A: 2804; November 1978. [7819790]

Eight variables were found related to problem-solving achievement. Other variables effective in predicting problem-solving achievement were also noted. (grade 4)

Zilkha, Phyllis Siegel. Training Children to Conserve Volume: An Experimental Acceleration of Cognitive Development. (New York University, 1977.) DAI 38B: 4997-4998; April 1978. [7803046] [grades 3–6]

Zucker, Andrew Arthur. Laboratory Activities and Reading in High School Geometry. (Harvard University, 1978.) DAI 39A: 2804-2805; November 1978. [7821040]

Innovations to make the geometry course more interdisciplinary, diverse, and "humanistic" are discussed and evaluated. (grade 10)

Journals Searched

The following journals were searched in developing this listing. An asterisk indicates that the journal was searched page by page; articles from those without asterisks were located through an index such as ERIC's *CIJE* or *Psychological Abstracts*. The number in parentheses indicates the number of references listed.

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* *American Journal of Mental Deficiency* (4)
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* *American Mathematical Monthly* (2)
* *Arithmetic Teacher* (4)
* *Australian Mathematics Teacher* (1)
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* *British Journal of Educational Psychology* (7)
* *Child Development* (7)
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* *Colorado Journal of Educational Research* (2)

* *Contemporary Education* (1)
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* *ECTJ* (formerly *AV Communication Review*)
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This index is designed to help the reader locate references to designated mathematical topics. Not all studies are included, nor is the cross-referencing exhaustive. The studies have been grouped by source (J, journal; D, dissertation); level is indicated by E, elementary; S, secondary; and C, college and other postsecondary.

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Cohen, P.	S
Crown	E
Gullen	E
Monteiro	E
Montgomery	E
Thomas, P.	C

Operations with Whole Numbers and Fractions

J

Alderman	E
Babad and Bashi	S
Bana and Nelson	E
Barnett and Eastman	E
Broughton and Lahey	E
Brown and Burton	E
Brush	E
Campbell	E
Ethelberg-Laursen	E
Grunau	E
Heibert and Tonnessen	E
Howell	E/S
Kieren and Nelson	E/S
Thornton	E
Vest	E
Wheatley and Wheatley	E/S

D

Alderman	E
Allardice	E
Allen	S
Berger	E
Bird	E
Bosland	E
Campbell	E
Crown	E
Daugherity	E
Davis, S.	E
Gabbard	E
Generes	E
Gerling	E
Graham	E
Grossman	E
Hebbeler	E
Johnston	E
Marcy	E
McBride	S
Smith, R.	C
Travis	C
Turner	S
Weiland	E
Woodward	E

Organizing and Grouping

J

Becker and Young	S
Behr and Eastman	E/C
Breuning	S
Claxton and Acres	E
Duby	C
Eastman and Salhab	E
Eshel and Klein	E
Fitzgerald	S
Flexer	E
Forman and McKinney	C
Hassett and Thompson	C
Hundert and Batsone	E
Irwin et al.	E/S
James and Knief	E
Johnson et al.	E
Lukasevich and Gray	E
Mayer	C
McLeod et al.	E
Meyers et al.	E
Miller and Sabatino	E
Moers and Harris	E
Moore and Parr	E
Packer and Bain	C
Pascarella	C
Ritter	E
Sagotsky et al.	E
Sawada and Jarman	E
Schunke	E
Seidner et al.	E
Strang et al.	E
Swain and Barik	E
Trown	E

D

Abel	C
Adair	E
Azzi	E
Ballain	E
Boehmer	E
Boylan	C
Briggs, J.	S
Casner	S
Chang, P.	C
Cohen, C.	S
Crockett	S
Daughdrill	C
Dejarnette-Ondrus	S
Dianna	E
Fitzgerald	E
Flowers	E
Geimer	S
Greenwood	C
Grimshaw	E
Hartley	E
Herman	E
Horak	E
Huff	E
Johnson, W.	S
Jolly	S
Jones	E
Keating	C
Koos	S
London	S
Matty	S
McCabe	E
McDermott	E
McFarland	E/S
Miller, L.	C
Nicholson	E
Olson	S
Pribnow	S
Price, D.	E
Randle	E
Romine	E
Salviani	E
Savage	S
Scrofani	E
Sears	S
Stewart, J.	E/S
Swan	E
Tanguma	E
Tapp	S
Tate	E
Thomas, O.	E
Thomas, P.	C
Tilson	E
Vincent	S
Webb, N. M.	S
Weeks	E
White	C
Zucker	S

Other Individual Factors

J

Babad and Bashi	S
Berry	S
Bilbo and Milkent	C
Bridgeman and Shipman	E
Brush	C

Buriel	E
Burton	E/S
Christoplos and Borden	E
Cicirelli	E/S
Clements and Barnes	E/S
David and Pelavin	S
DeRuiter and Stramiello	E
Eshel and Klein	E
Fennema and Sherman	E/S
Ginther	S
Hendrickson and Uhrig	E
Hundert and Batsone	E
Jerse and Fakouri	E
Koff and Mokros	E
Lloyd	C
Marjoribanks (Feb.)	E
Marjoribanks (June)	E
Meltzer	E
Michaels	C
Miller and Sabatino	E
Mokros and Koff	E
Morris et al.	C
Oakland	E
Rakow et al.	S
Rappaport	S
Ritter	E
Rubin and Balow	E
Sepie and Keeling	E
Shayer and Wylam	E
Strang et al.	E
Trown	E
Touliatos et al.	E
Velandia et al.	S
Walsh and Walsh	S
Webster and Schenck	E/S
Wheatley et al.	E/S

D

Ardi	E
Austin	E/S
Bleyer	C
Bradley	S
Brook	E
Carey	E
Coppus	S
Courtney	E
Crumpton	C
Cunningham	S
Davenport	C
DeLoatch	C
Doyle, B.	E
Duval	S
Ehnis	E
Faw	E/S
Fayock	C
Fowler, P.	E
Gabbard	E
Gaines	E
Gajar	E
Gallery	S
Gessner	E
Graham	E
Grimshaw	E
Hall	E/S
Heil	E
Herman	E
Hornblum	E
Jemmott	C
Jones	E
Josephson	C
Kleinman	E
Knudsen	E
Krakow	E
Kruglick	E
McAffee	S
Montgomery	E
Moroz	E
Oliyaee-Zand	C
Ortiz-Franco	S
Peterson	C
Rancifer	S
Randle	E
Rogerson	E
Safran	E
Schiesler	C
Seifnaraghi	E
Simmons	C
Springer	E
Szykula	E
Trepanier	E
Webber	C
Yang	C

Problem Solving

J

Anthony and Hudgins	E
Babad and Bashi	S
Bana and Nelson	E
Cohen and Carry	S
Flener	S
Hollander (Jan.)	E
Hollander (Apr.)	E
Houtz and Speedie	E
Meyer	E
Sagiv	S

D

Alderman	E
Bratton	C
Caldwell	E/S
Conan	E/S
Days	S
Fisher, S.	S
Fowler, E.	S
Graham	E
Hebbeler	E
Kasnic	E
Lee, J.	S
Lee, K.	E
Moroz	E
Moses	E
Ortiz-Franco	S
Savage	S
Schenck	E
Semmes	S
Silver	S
Smith, R.	C
Thomas, O.	E
Webb, N. M.	S
Zalewski	E

Sequencing and Structure

J

Alderman	E
Broughton and Lahey	E
Friesen	C
Good and Beckerman	E
Gray and Satterly	S
Hecht	S
Kraner	E
Kurtz	E
Porter et al.	E
Thornton	E

D

Adams	S
Allardice	E
Anastasi	E
Carpenter	C
Corso	E
Corwin	S
Cuneo	E/C
Daugherity	E
David	C
Davis, S.	E
Denenberg	S
Dubriel	S
Ferguson	C
Gast	S
Heatherly	E
Howell	C
Kazarian	E
Koos	S
Mason	C
Meyerson	E
Mohammad	S
Price, S.	E
Richbart	S
Riddle	C
Stein	S/C
Williams	C
Zucker	S